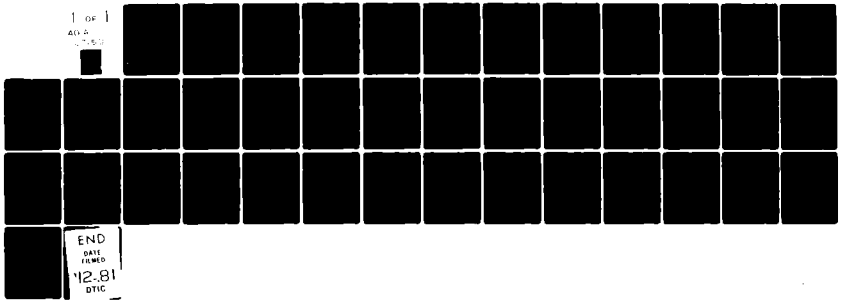
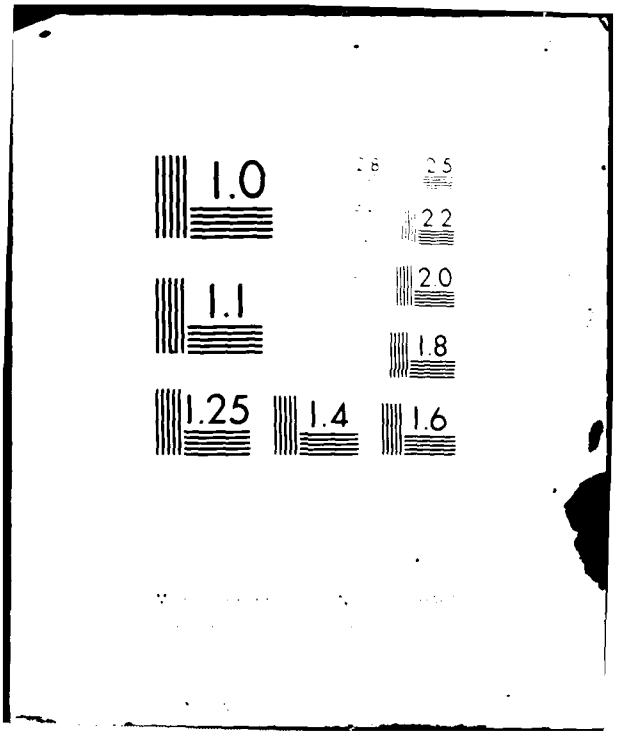
AD-A107 150 ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLAT--ETC F/G 17/7
STANDARD ENGINEERING INSTALLATION PACKAGE. AIR TRAFFIC RADIO CH--ETC(U)
OCT 81
UNCLASSIFIED USACEEIA-SEIP-036-1 NL

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DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY COMMUNICATIONS-ELECTRONICS
ENGINEERING INSTALLATION AGENCY
Fort Huachuca, AZ 85613

Change 1

30 Oct 81

STANDARD
ENGINEERING INSTALLATION PACKAGE
AIR TRAFFIC RADIO CHANNEL CONTROL EQUIPMENT

USACEEIA SEIP 036-1 November 1979, is changed as follows:

1. Remove old pages

Remove old pages	Insert new pages
1-3 and 1-4	1-3 and 1-4
1-5 and 1-6	Delete
1-7 and 1-8	1-7
2-1 and 2-2	2-1 and 2-2
3-3 and 3-4	3-3 and 3-4
5-2 thru 5-7	5-2 thru 5-8

2. Remove old Section 4 and replace with New Section 4.

3. After posting the changes, file this change sheet in front of the basic publication for reference purposes.

FOR THE COMMANDER:

OFFICIAL:

R. K. BOWERS
Colonel, Signal Corps
Deputy Commander

TED M. MURRAY
CPT, Signal Corps
Executive Officer

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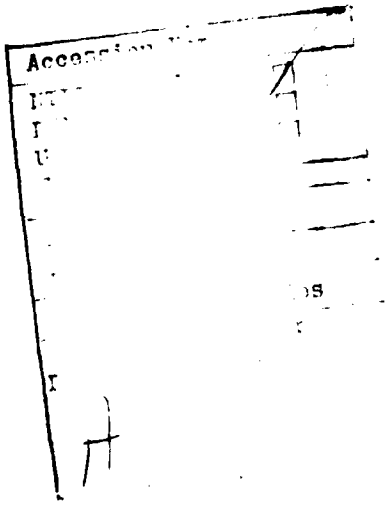


1.3.2 Non-Government Publications.

NFPA 70-XXXX	National Electrical Code (Current edition)
IM-1000	GRM Corporation Instruction Book, Air Traffic Radio Channel Control Equipment
IM-1588	GRM Corporation Instruction Book, Table Top Console Model TTC-8/800 (A)

1.4 DEFINITION OF TERMS.

Amplification. Increase in magnitude of a signal, usually to counteract losses.

Attenuation. Weakening of a signal, either incidentally by normal transmission losses or deliberately.

Collocated. Two or more units placed in close proximity so as to share common facilities.

Radio channel control equipment. The facilities which enable an operator at a console to have access to multiple send and receive radio channels through remote radio transmitters and receivers.

Ring. A ring-shaped contacting part of a plug, in back of but insulated from, the tip. The corresponding contact on a jack. The corresponding conductor.

Sleeve. A cylindrical contacting part of a plug, in back of the ring, insulated from both the ring and the tip. The corresponding contact on a jack. The corresponding conductor.

Tip. The contacting part at the tip end of a plug. The corresponding contact on a jack. The corresponding conductor.

1.5 BACKGROUND. This SEIP is prepared in accordance with US Army Communications Command (USACC) Supplement 1 to AR 105-6.

1.6 Other Considerations. RED/BLACK criteria have not been covered in this document. Refer to MIL-HDBK-232 for details.

1.7 SYSTEM DESCRIPTION. The ARTCC equipment provides control over the ground based portion of radio communications between the airfield operations center and aircraft. The ARTCC equipment consists of a table-top console, model TTC-8/800(A), which houses one jack panel JU-2404 (included), one audio unit AU-2400 (not included), and one selector unit ASU-2400 (not included). The console comprises a complete radio control operator's position with the

capability of controlling one to eight radio channels. The console is designed to be mounted on a flat, horizontal surface wherever operation is convenient, and the necessary wiring is accessible. Figure 1-1 shows a block diagram of the ATRCC equipment interconnections. Figure 1-2 shows the front elevation of the console.

1.7.1 Jack Panel (JU-2404). The jack panel consists of a panel in which four jacks are mounted to accommodate the microphones, headphone (and headset as required), and a circuit board. The jack panel is connected to the audio unit by means of a cable and a plug. The jacks and associated circuits are as follows:

a. J1 and J2: These are spaced 5/8" apart to receive a standard twin wire plug (JAN type PJ-511). The associated circuits are for operation with Plantronics HS-0111 or equivalent headset. R1 in conjunction with the microphone bias circuits provides a matching 50 ohm load for the microphone. C1 prevents the passage of biasing current thru R1. R3 and R4 provide bias current for the headset microphone. The microphone is connected to the tip terminals, the earphone to the sleeve terminals, and the transmitter keying switch to the ring terminals. The headset twin plug can be inserted either way, with no polarity.

b. J3: The low level microphone jack is connected directly to the microphone input line to the Microphone Amplifier Lamp Brightener Module and will accommodate the M-80C low level (-50dBm) microphone for use with the equipment.

c. J4: This jack will accommodate the NT-409985A or equivalent M-109 (with suitable connector) with internal transistor preamplifier requiring a voltage source. This source is provided by R8 and CR1 connected across the supply voltage and R7 as a current limiting and isolation resistor. Filtering and decoupling is provided by C6. Isolation between this and a headset microphone connected to J1 and J2, and also attenuation of the signals to the correct levels for input to the microphone amplifier circuits, are provided by R2 and R5. D.C. isolation is provided by C2 and C3. When the keying switch is pressed a voltage is impressed on the base of Q1 causing it to conduct and ground the key line, thereby activating the keying function in the equipment.

1.7.2 Audio Unit (AU-2400). The audio unit is a module that plugs into and becomes a part of the console. This module is interconnected to the other modules within the console through three connectors located on the back of the module. The audio unit contains a microphone amplifier/lamp brightener module, volume control module, speaker amplifier, recorder monitor module (if required), and speaker.

1.7.3 Air Traffic Control Tower (ATCT) Selector Unit (ASU-2400). The ATCT selector unit is an enclosure that plugs into and becomes a part of the control console. This enclosure houses the ATCT selector modules (ASM-2401) and provides the interconnect capability between the selector modules, the audio unit, and the external radios. The ATCT selector unit can house from one to eight selector modules.

1.7.4 ATCT Selector Modules (ASM-2401). Each ATCT selector module provides the capability for control of one radio channel. This capability consists of audio transmit and receive amplifications, transmit keying provisions, visual indication of receive audio, channel selection and channel status, and a headset/speaker selector control.

1.7.5 Console Power Supply Module (HP62024G). The power supply module provides 24 V dc nominal output at 7.5 a maximum for the console. The power supply module is not a part of the operating console.

1.7.6 Forty-eight Volt Power Supply Module (HP62048G). The 24 V console power supply described in 1.7.5 is required at all sites. In addition, some sites will require a 48 V power supply. The HP-62048G provides 48 V at 4 A. The 48 V power supply will be used:

a. When the cable plant is such that a 48 V dc keying circuit must be used to operate the keying relay in a transmitter control panel located at a remote transmitter site.

b. When a transmitter control panel is presently installed and command decision has been made to continue its use without alteration.

1.7.7 Power Supply Module Tray (HP62410A). The HP 62410A is a rack mounted tray in which the power supply module(s) will be mounted. The tray may be installed in any convenient 19-inch equipment rack or in a separate cabinet (see 1.7.8). The tray requires three mounting spaces.

1.7.8 Cabinet (EK 314). Where no rack space is available, the HP 62410A power supply module tray may be mounted in Par Metal cabinet EK 314.

1.8 PROCEDURES FOR SUBMITTING COMMENTS.

a. Users of this publication are invited to submit recommendations for its improvement. Comments should be keyed to the drawing, page, paragraph, and line of the text for which the change is recommended. A mailing card for convenience is bound with this SEIP. Comments should be sent directly to the Commander, US Army Communications-Electronics Engineering Installation Agency, ATTN: CCC-CED-STD, Fort Huachuca, AZ 85613.

b. Requests for USACEEIA regulations and forms should be addressed to the Commander, USACEEIA, ATTN: CCC-DRM-P-R, Fort Huachuca, AZ 85613.

SECTION 2. SITE SURVEY DATA AND CHECKLIST.

2.1 GENERAL. This section provides the information necessary to accomplish preliminary engineering, equipment layout, and arrangements pertinent to the installation of the ATRCC equipment.

2.2 PRE-SITE SURVEY. Prior to the site survey, it should be determined whether the ATRCC installation will be a new facility or a part of an existing facility. Where the ATRCC must interface with an existing facility, the following must be determined:

a. Collocated, separate, remote, local, or a combination of these configurations for transmitters and receivers.

b. Type of equipment which ATRCC must interface.

c. Keying voltage required.

2.3 SITE SURVEY. Adequate, current information may be available at the responsible area engineering-installation agency. If this information is sufficient to perform detailed engineering, no site survey is necessary. If a site survey is required, it should be conducted in accordance with the criteria set forth in DCAC 370-160-3.

2.3.1 Site Survey Checklist. The site survey checklist (figure 2-1) should be used as a guide by the survey team for identifying and assembling the required technical data during the site survey. The checklist, when completed, will aid in preparing an official site survey report with equipment layout drawings.

2.3.2 Information To Be Obtained. Information to be obtained during the survey includes:

a. Location for all planned equipment.

b. Accurate, dimensioned floor plan of all areas affected.

c. Rack and cabinet layouts of all equipment to be interfaced including recorder AN/TNH-24(V), if required.

d. Data for cable ladders, ducts, and conduits as required.

e. Ac power panels and circuit breakers available and their locations.

f. Interconnecting cabling available or required between console and transmitters, receivers, and recorder if required.

2.4 EQUIPMENT CHARACTERISTICS. The physical and electrical characteristics of the applicable equipments are listed in table 2-1. This table should be used to determine the site's physical size, ac power requirements, floor loading criteria, and additional heat dissipation.

2.5 SITE SUPPORT. During the survey, arrangements should be made for the site support required prior to and during installation. Immediately after the survey, the project engineer will document agreements reached in the project coordination letter (PCL). The project engineer is also responsible for updating the PCL if site support requirements change.

d. Inventory the BOM items to ensure all items are on hand. Missing items or shortages must be noted prior to the arrival of the installation team onsite.

e. Arrange for the transportation of personnel and equipment; determine the methods for control and storage of BOM items, tools, and other required equipment.

f. Review all specifications and drawings to ensure that no additional engineering assistance is required prior to the start of installation.

g. Coordinate all outages that may be required for the installation and/or cutover of this facility with the air traffic control (ATC) chief and the airfield commander.

3.3.2 Console Installation.

3.3.2.1 THe TTC-8/800(A) console is comprised of several operational components. Reference STD-AF-0665, sheet 1, for console details. The number of selector modules (radio channels) will be determined by the operational requirements of the airfield being installed.

3.3.2.2 Install the TTC-8/800 console at location determined in site suvey and in accordance with EIP drawings. Reference STD-AF-0481 for typical console location.

3.3.3 Power Supply Installation.

3.3.3.1 The 24-V dc power supply will be utilized in all cases where a TTC-8/800(A) console is being installed. In addition, the 48-V dc power supply will be used as specified in 1.7.6.

3.3.3.2 Install the 24-V dc power supply (and the 48-V dc power supply, where required) in accordance with STD-AF-0665, sheet 2, STD-AF-0481 and the EIP drawings.

3.3.4 Terminal Box. Install the terminal box and terminal board in accordance with STD-AF-0481, sheet 1 STD-AF-0476, sheet 1 and EIP drawings.

3.3.5 Cable Raceway Installation. Install the cable raceway in accordance with STD-AF-0476, STD-AF-0478, STD-AF-0480 and EIP drawings.

3.3.6 Cable Installation. Install cables in accordance with STD-AF-0476, STD-AF-0477, STD-AF-0478, STD-AF-0480 and EIP drawings.

3.3.7 Ground Installation. Install a ground in accordance with STD-AF-0479, sheet 1, and EIP drawings.

3.3.8 Coaxial Relay Installation. The coaxial relay panel has provisions for installation of up to 3 relays, to be used as required. Install in accordance with drawing STD-AF-0666.

3.3.9 Terminations. Terminate cables in accordance with drawings STD-AF-0477, STD-AF-0478, STD-AF-0480 and EIP drawings.

3.4 RT-524/VRC TRANSCEIVER INSTALLATION.

3.4.1 When installing an AN/RT-524/VRC to be controlled by the TTC-9/800(A), either a remote control panel or an audio isolation panel (STD-AF-0309) will be used. The RT-524/VRC, unlike the AN/GRR and AN/GRT equipment, has unbalanced audio lines. This condition, if not corrected, may cause objectionable noise to be generated on the audio lines that are extended from the RT-524/VRC. Either of these two external panels provide audio isolation transformers to correct the potential problem.

3.4.2 When fabricating the audio isolation panel, connect transformer pins 3 to 4 and pins 9 to 10 on each transformer. For matching 600 ohms to 600 ohms, pins 1 and 12 are primary and pins 6 and 8 are secondary.

SECTION 4. ENGINEERING INSTALLATION DRAWINGS

4.1 GENERAL. The engineering installation drawings contained in this section show typical interconnect diagrams, console configuration, and cabinet details.

4.2 MODIFICATION OF INSTALLATION DRAWINGS. The engineering drawings may be modified during and after the installation of a project to reflect changes. Drawing changes will be marked with color pencils as follows: red for additions, blue for engineering notes, and yellow for deletions. Copies of modified drawings will be retained at each site and will also be forwarded to the responsible area office of the C-E engineers for corrective action.

4.3 US ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY DRAWINGS.

STD-AF-0665 2 Sheets	Air Traffic Radio Channel Control Equipment
Sheet 1	Console Configuration
Sheet 2	Power Supply Cabinet Details
STD-AF-0666	Coaxial Relay Panel
STD-AF-0476	Advisory Facility Typical Installation Detail
STD-AF-0477	ATC Radio Control Block Diagram
STD-AF-0478 3 Sheets	ATC Radio Control Wiring Diagram
Sheet 1	Channel One Schematic for 6 Wire Operation
Sheet 2	Channel One Schematic for 48 Vdc Keying Operation
Sheet 3	Channel One Schematic for RT-524/VRC Transceiver
STD-AF-0479	Advisory Facility Grounding Plan
STD-AF-0480	ATC Radio Control Wiring List
STD-AF-0481	Advisory Facility Typical Floor Plan
STD-AF-0309	Audio Isolation Panel

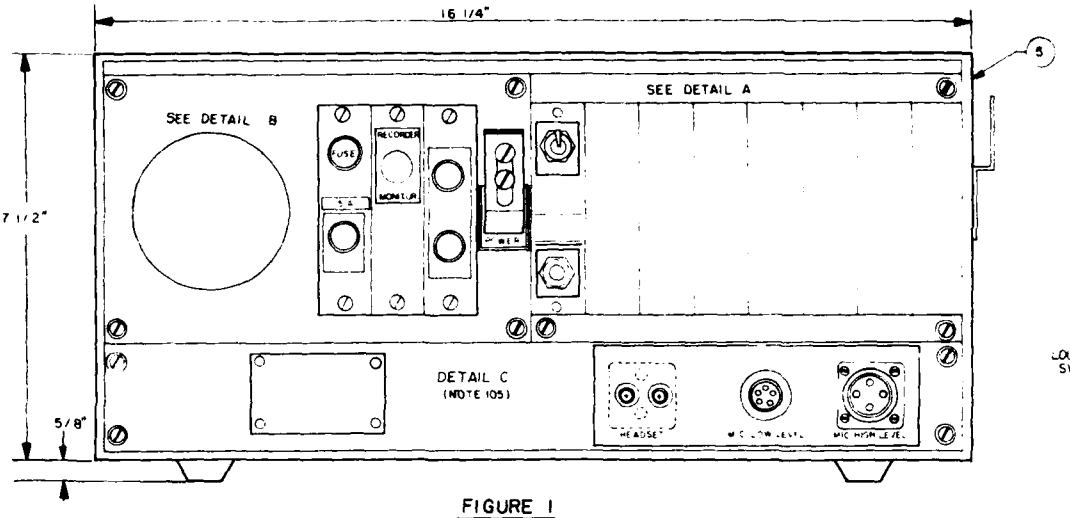
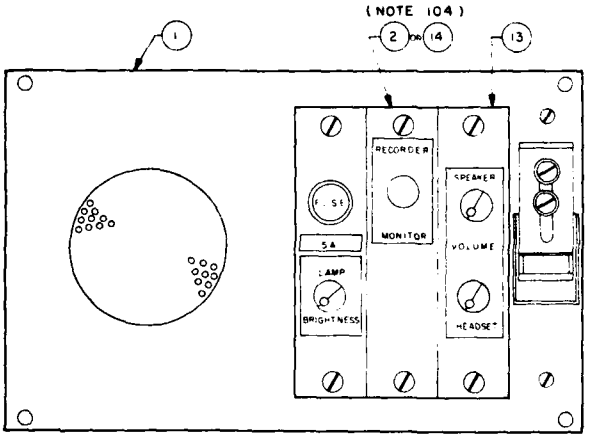
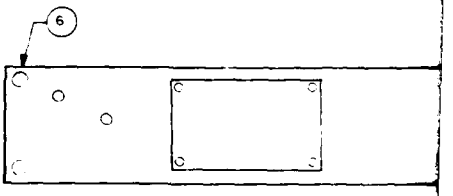


FIGURE 1
TTC -8/800(A) CONSOLE



DETAILS B

AUDIO UNIT AU-2400 WITH MICROPHONE AMPLIFIER MAM 2400, VOLUME COTROL MODULE VCM-2400, AND RECORDER MONITOR MODULE, RMM - 2400 (IF REQUIRED)
(NOTE 102)



DETAIL
JACK PANEL
(NOTE

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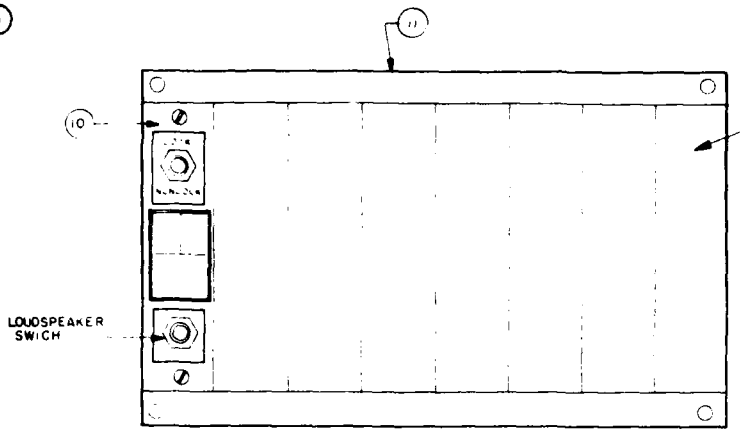


DETAIL A

SELECTOR UNIT ASU-2400 WITH SELECTOR MODULE ASM-2401
(NOTE 101)

NOTES

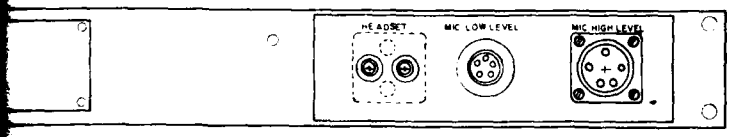
101 THE SELECTOR UNIT CONTAINS ONE TO EIGHT SELECTOR MODULES ONE MODULE IS REQUIRED FOR EACH CHANNEL EACH SELECTOR MODULE PLUGS INTO A RECEPTACLE IN THE SELECTOR UNIT THE SELECTOR UNIT HAS THREE RECEPTACLES (J201, J202 AND J203) AND P204 P204 MATES WITH J102 ON THE AUDIO UNIT J203 IS USED ONLY IF MORE THAN EIGHT CHANNELS ARE REQUIRED J201 AND J202 ARE THE OUTLETS FOR THE AUDIO AND KEYING REFER TO STD-AF-0477, 0478 AND 0480 FOR WIRING INFORMATION.

102 THE AUDIO UNIT HAS FIVE RECEPTACLES (J101, J102, J103, J104 AND J105) ON THE REAR J101 MATES WITH P301 FROM THE JACK PANEL J102 MATES WITH P204 FROM THE SELECTOR UNIT J105 IS THE 24V DC INPUT J104 IS A RECORDER-MONITOR JACK J103 IS USED FOR REMOTE VOICE TRANSMISSION (AUDIO AND PUSH-TO-TALK) REFER TO STD-AF-0480 FOR WIRING INFORMATION

103 CONNECTOR RECEPTACLES J1, J2, J3, J4, AND J5 ARE WIRED INTERNALLY WITHIN THE JACK PANEL PLUG P301 PLUGS INTO AUDIO UNIT CONTINUING THE NECESSARY SIGNAL AND VOLTAGE

104 ITEM 14 IS USED WHEN RECORDING IS REQUIRED OTHERWISE USE ITEM 2

105 JACK PANEL JU2404 IS INCLUDED IN THE CONSOLE, TTC-8/800(A) AND NEED NOT BE CALLED OUT AS SEPERATE ITEM WHEN TCC-8/800(A) IS ORDERD



NOTE 105

DETAIL C

JACK PANEL JU-2404
(NOTE 105)

ITEM	STOCK NO	DESCRIPTION	PART NO / NSN	UI	QTY
19	19746A	SCREW MACHINE.10-32X3/4"	NSNR	EA	
18	02406H	PANEL.BLANK.19"X7"X1/8".GREY	5975-00-685-9791	EA	
17	02469E	PANEL.BLANK.19"X5-1/4"X1/8".GREY	5975-00-685-9546	EA	
16	08712Z	PANEL.BLANK.19"X3-1/2"X1/8".GREY	5975-00-688-2541	EA	
15	25145J	ELBOW.RACEWAY.INVERTED INTERNAL WIREMOLD G-3017N	NSNR	EA	
14	28604D	RECORDER MONITOR MODULE GRM CORP. FA-9334-4	5820-01-053-7869	EA	
13	25139D	VOLUME CONT MDL.GRM CORP.VCM-2400	NSNR	EA	
12	25136A	TRAY.POWER SUPPLY.RACK MOUNTING. 19"W X5-1/4" H.HEWLETT PKG 6241A	NSNR	EA	
11	25138C	SEL UNIT.ATCT.GRM CORP.ASU 2400	NSNR	EA	
10	25137B	SEL MODULE.ATCT.GRM CORP.ASM 2401	NSNR	EA	
9	25244J	POWER SUPPLY 48-V DC 4 AMPERES OUTPUT.120/240 V AC INPUT.HEWLETT PACKARD MODEL HP62048G	NSNR	EA	
8	25135G	POWER SUPPLY.24-V DC 7.5 AMPERES OUTPUT.120/240 V AC INPUT.HEWLETT PACKARD MODEL HP62024G	NSNR	EA	
7	25132L	MIC AMPLIFIER MODULE.GRM CORP. MAM-2400	NSNR	EA	
6	30325W	JACK PANEL. GRM CORP. JU-2404	NSNR	EA	
5	25130N	CONSOLE.GRM CORP. TTC-8/800(A)	NSNR	EA	
4	30054B	CABINET.EQUIPMENT.21-1/2" WIDE.18" DEEP.19-1/4"HIGH.PAR METAL #DL-1717	NSNR	EA	
3	25128D	CABINET.EQUIPMENT.22"WIDE.18"DEEP. 47-1/2" HIGH.PAR METAL #EK-314	NSNR	EA	
2	25127C	BLANK PANEL.ATCT SELECTOR UNIT.GRM CORP.ABP-2400	NSNR	EA	
1	25126B	AUDIO UNIT.GRM CORP.AU-2400	NSNR	EA	

PARTS LIST

CONT NO STD-AF-0665	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
DES'D YOUNG 28JAN81	AIR TRAFFIC RADIO CHANNEL CONTROL EQUIPMENT
DRAWN MD INMAN 6FEB81	
CHK'D	
APP'D	
SIZE D	FSCM NO 50470
SCALE NONE	SHEET

NEXT ASSEMBLY	USED ON
DWG INDEX NO	

CONFIGURATION CONTROLLED VCD

1 2

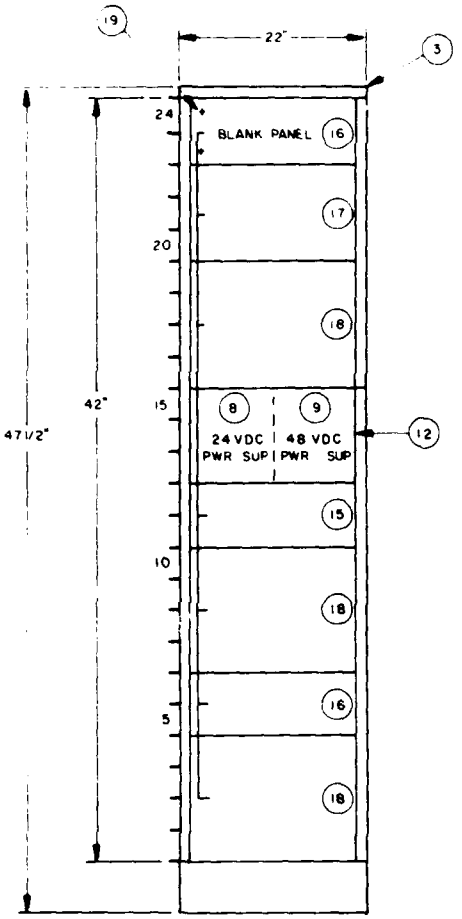


FIGURE 2

POWER SUPPLY CABINET
(FRONT VIEW)
(NOTE 202)

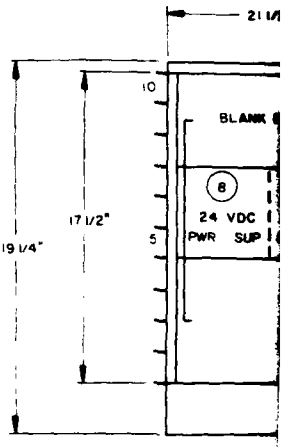


FIGURE 1

TABLE MOUNTED POWER SU
(NOTE 201)

REVISION			
LTR	DESCRIPTION	DATE	APPROVED

NOTES:

2C1 WHEN SPACE PERMITS, INSTALL POWER SUPPLIES IN EXISTING 19" EQUIPMENT RACKS OR CABINETS WITHIN 50 CABLE FEET OF CONSOLE

2C2 WHEN EXISTING RACK SPACE IS NOT AVAILABLE FOR THE POWER SUPPLIES, PROVIDE A SEPARATE CABINET; EITHER A FREE-STANDING CABINET (ITEM 3) OR TABLE-MOUNTED CABINET (ITEM 4) DEPENDING ON SPACE AND OTHER EQUIPMENT CONSIDERATIONS.

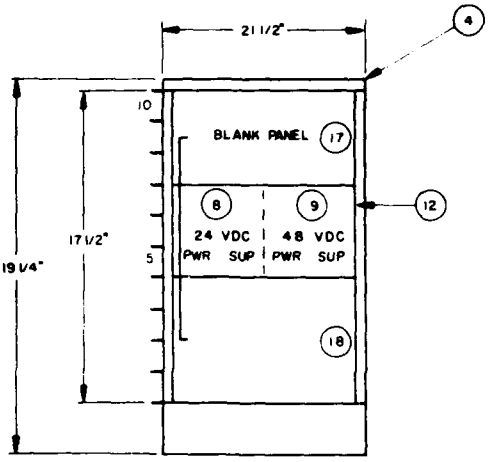


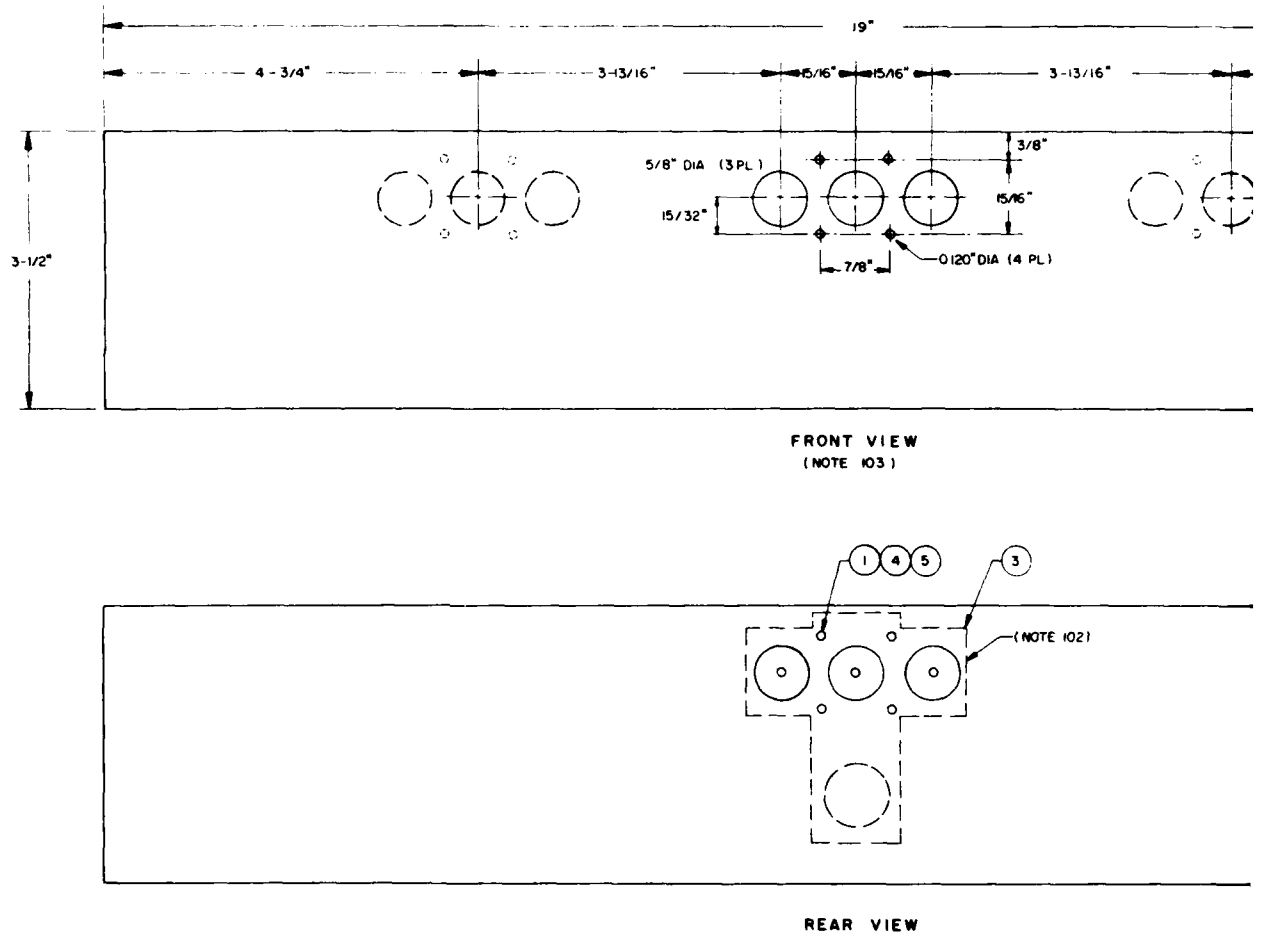
FIGURE 3

TABLE MOUNTED POWER SUPPLY CABINET
(NOTE 201)

IDENT NO STD-AF-0665	SIZE D	FSCM NO 50470	DRAWING NO
SHEET 2 OF 2			
DRAWN BY KAVANAGH DATE (YYMMDD) 87FEB 8			
APPROVED BY	SCALE NONE	1"	SHEET OF

2

1

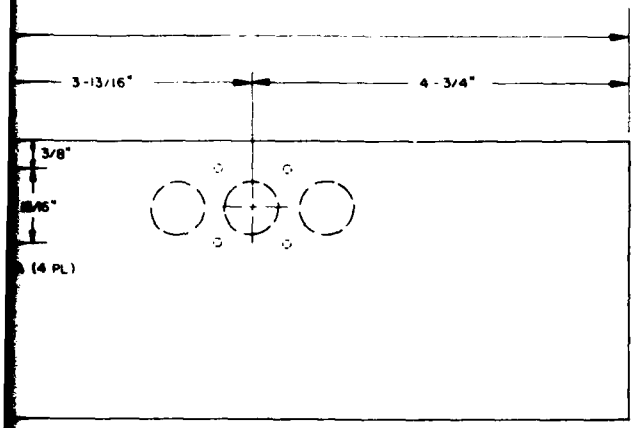


FRONT VIEW
(NOTE 103)

REAR VIEW

FIGURE 1
COAXIAL TRANSMIT/RECEIVE RELAY PANEL
(NOTE 101)

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED

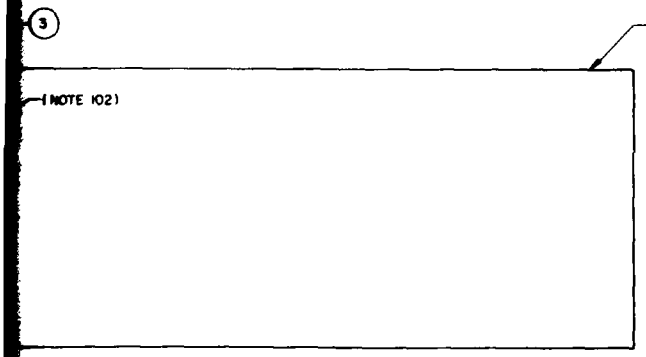


NOTES:

101. INSTALL PANEL IN THE REAR OF THE TRANSMITTER/RECEIVER RACK.

102. MOUNT COAXIAL RELAY TO PANEL WITH COAXIAL CABLE CONNECTORS FACING THE REAR OF THE CABINET.

103. DRILL THREE 5/8" DIAMETER HOLES FOR EACH COAXIAL RELAY. DRILL FOUR 0.120" DIAMETER HOLES USING NO. 31 DRILL FOR MOUNTING RELAY TO PANEL.



Y PANEL

FIND NO	SMR	DESCRIPTION	PART NO/NSN	UI	QTY
5	09458K	WASHER, FLAT, STEEL, #4	5310-00-595-6425	HD	
4	11042K	SCREW, MACHINE, PAN HD, STL, 4-40X1/2"	5305-00-984-6032	EA	
3	11743F	RELAY, COAX, 500W, 24V DC CHANGEOVER, TYPE N, AMPHENOL P/N 319-10744-3	5945-00-086-7131	EA	
2	087122	PANEL, BLANK, 19"X3-1/2"X1/8", GREY	5975-00-686-2541	EA	
1	07878K	NUT, HEX, STEEL, CADMIUM PLATED, 4-40	5310-00-194-8180	EA	

PARTS LIST

DEPT NO: STD-AF-0666	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
SHEET 1 OF 1	
DESIGNED BY: YOUNG DATE: 28JAN81	COAXIAL RELAY PANEL
DRAWN BY: GOODHUE DATE: 4 FEB81	
CHECKED BY:	
APPROVED BY: DATE: 26 MAR 81	SIZE: D FSCM NO: 50470 DRAWING NO:
DESIGN AGENCY: CCC-CED-SWA	SCALE: NONE SHEET OF

NEXT ASSEMBLY	USED ON
DWG INDEX NO:	

1

2

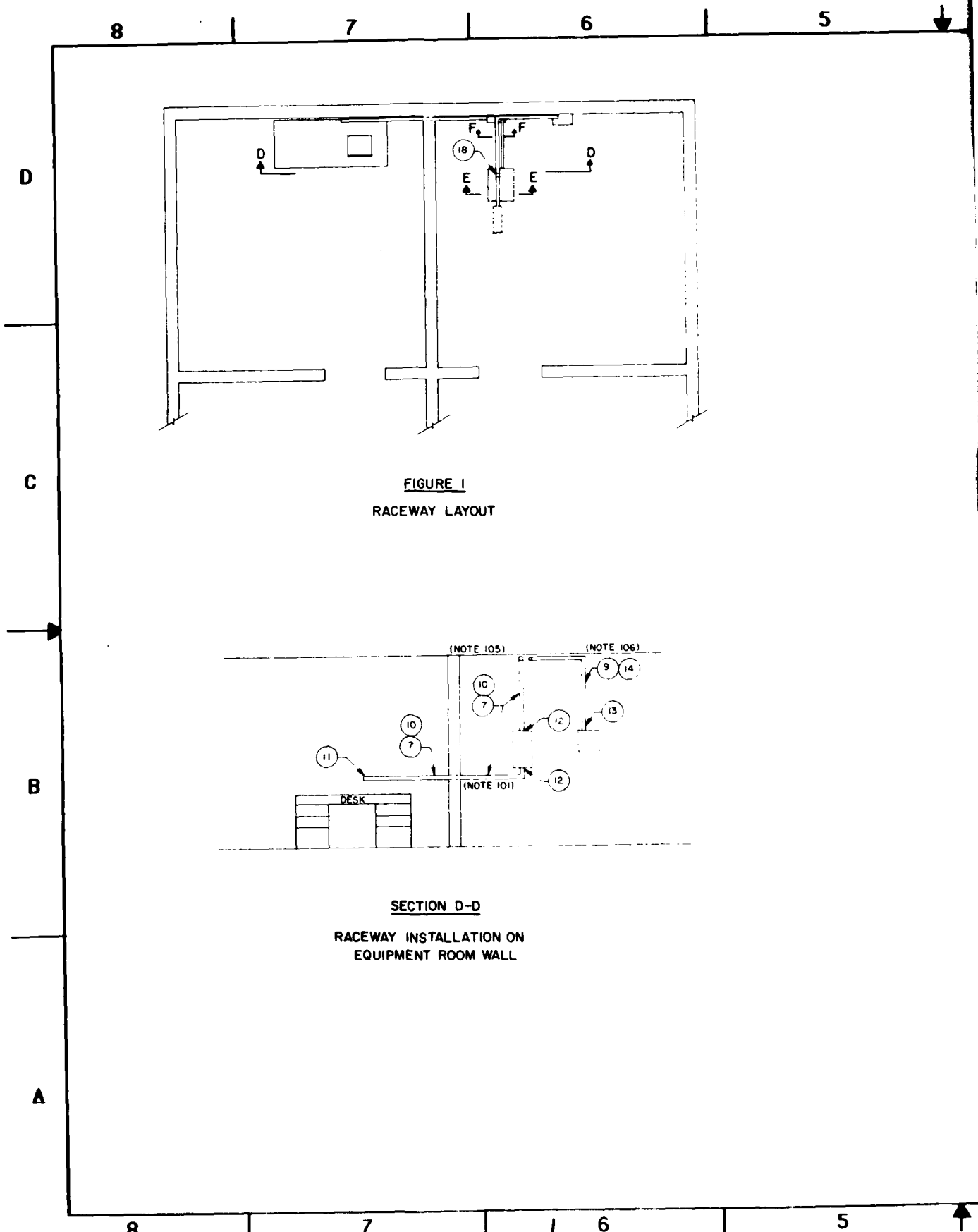


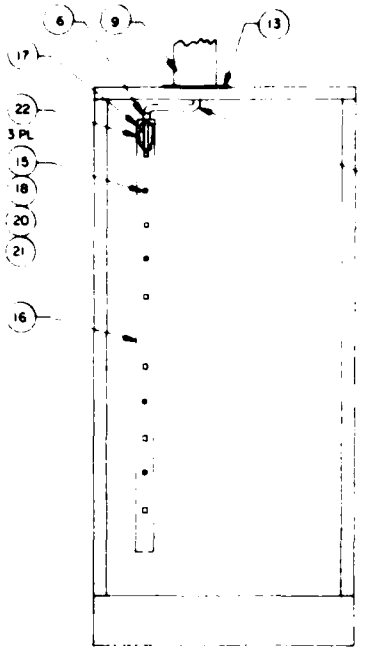
FIGURE 1

RACEWAY LAYOUT

SECTION D-D

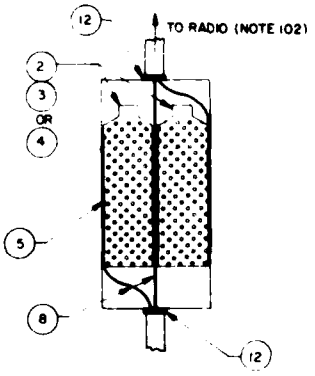
RACEWAY INSTALLATION ON
EQUIPMENT ROOM WALL

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED



SECTION E-E

POWER SUPPLY CABINET RACEWAY AND AC OUTLET INSTALLATION



SECTION F-F

SIGNAL TERMINAL BOX MOUNTING AND RACEWAY TERMINATION (NOTE 103)

NOTES:

101. SPECIFY HOLE LOCATION AND SIZE IN PROJECT COORDINATION LETTER AS INSTRUCTIONS TO THE FACILITIES ENGINEER.

102. REFER TO SEIP 010 FOR ENGINEERING CRITTERIA FOR CABLE INSTALLATION BETWEEN TERMINAL BOARD AND RADIO TRANSMITTERS AND RECEIVERS.

103. TERMINAL BOX SHOWN WITH UNPROTECTED BLOCKS INSTALLED. USE PROTECTED BLOCKS (ITEM 25, 26 OR 27) WHEN OUTSIDE PLANT CABLES ARE USED FOR CONNECTION TO RADIO TRANSMITTERS AND RECEIVERS.

104. CONNECT POWER CABLE TO 15 AMP CIRCUIT BREAKER IN TECHNICAL POWER PANEL.

105. ATTACH RACEWAY BASE TO WALL AND CEILING USING BOM ITEM 23 OR 24.

106. ATTACH BX CABLE TO WALL USING BOM ITEMS 14, 23 AND 24.

FIND NO	SML	DESCRIPTION	PART NO/NSN	UI	QTY
27	214547	BLOCK, TERMINAL, 25 PAIR, PROTECTED W/1304 PROTECTEDS, RELIABLE MI-25P	NSNR	EA	
26	75143	BLOCK, TERMINAL, 12 PAIR, PROTECTED PROTECTORS, RELIABLE MI-12P	NSNR	EA	
25	25142M	BLOCK, TERMINAL, 6 PAIR, PROTECTED W/1304 PROTECTORS, RELIABLE MI-6P	NSNR	EA	
24	06315A	SHIELD, EXPANSION, 1 4"X1-1 2"	5340-00-961-7302	HC	
23	001898	SCREW, WOOD, 8X1"	5305-00-901-2134	GR	
22	25134J	WIRE CONNECTOR, PRESSURE TYPE, #12-14 WIREMOLD W30	5940-00-984-5060	EA	
21	09019J	WASHER, LOCK, SPLIT, STEEL, #8	5310-00-045-3299	HD	
20	00487C	WASHER, FLAT, STEEL, #8	5310-00-167-0833	HD	
19	00740C	SHIELD, EXPANSION, 3/8"-16	5340-00-754-4560	BX	
18	08301M	SCREW, MACHINE, RND HD, STL 8-32X3.4"	5305-00-013-2768	EA	
17	13789F	ENTRANCE, END FITTING WIREMOLD 2010A	5975-00-673-7658	EA	
16	07788Z	OUTLET STRIP, AC, 6 OUTLETS, WIREMOLD 20GB306	5935-00-490-9842	EA	
15	07675L	NUT, HEX, STEEL, CADMIUM PLATED, 8-32	5310-00-550-2490	EA	
14	08244M	STRAP, RETAINING, 3/8" IN	5340-00-150-6783	EA	
13	11172M	BOX CONNECTOR, ELECTRICAL 3/8"	5975-00-284-6978	EA	
12	09051L	BOX CONNECTOR, ELECTRICAL, 0.7813 ID	5975-00-802-6531	EA	
11	02365Z	JUNCTION BOX	5975-00-153-6398	EA	
10	07945C	STRAP, RETAINING, 3/4" 1 HOLE	5340-00-598-2570	EA	
9	17106Z	CABLE, POWER, BX, 3-CONDUCTOR, #12 AWG, 0.307 DIAMETER	6145-00-806-9389	FT	
8	14548F	CABLE, ELEC, 15-PAIR, #22 AWG STR, 1.5 BELDEN 8776	6145-00-948-6412	FT	
7	02376Z	CONDUIT (EMT) THINWALL, 1-1.2"	5975-00-178-1217	FT	
6	18392R	BOX CONNECTOR, F O/W 0.307 DIA, BX CABLE, T&B 3301	5975-00-141-0453	EA	
5	08342N	BOX, TERMINAL, 23" HIGH, 11" WIDE, 2-1/2" DEEP, RELIABLE 5603	5975-00-933-7678	EA	
4	25140Y	BLOCK, TERMINAL, 26 PAIR, UNPROTECTED RELIABLE 5585	5940-00-933-7904	EA	
3	11279D	BLOCK, TERMINAL, 11 PAIR UNPROTECTED RELIABLE 5555	5940-00-933-7902	EA	
2	25141N	BLOCK, TERMINAL, 6 PAIR, UNPROTECTED RELIABLE 5561	5940-00-933-7901	EA	
1	22326G	BLANK END FITTING, WIREMOLD G 30108	5975-01-008-7218	EA	

PARTS LIST

IDENT NO STD-AF-0476	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
SHEET OF	
DESIGNED BY YOUNG DATE 28 JAN 8	ADVISORY FACILITY TYPICAL INSTALLATION DETAIL
DRAWN BY HERRINGTON	
CHECKED BY	
APPROVED BY	FSCM NO 50470 DRAWING NO
	SCALE NONE SHEET OF

NEXT ASSEMBLY	USED ON
DWG INDEX NO:	

D C B A

4 3 2 1

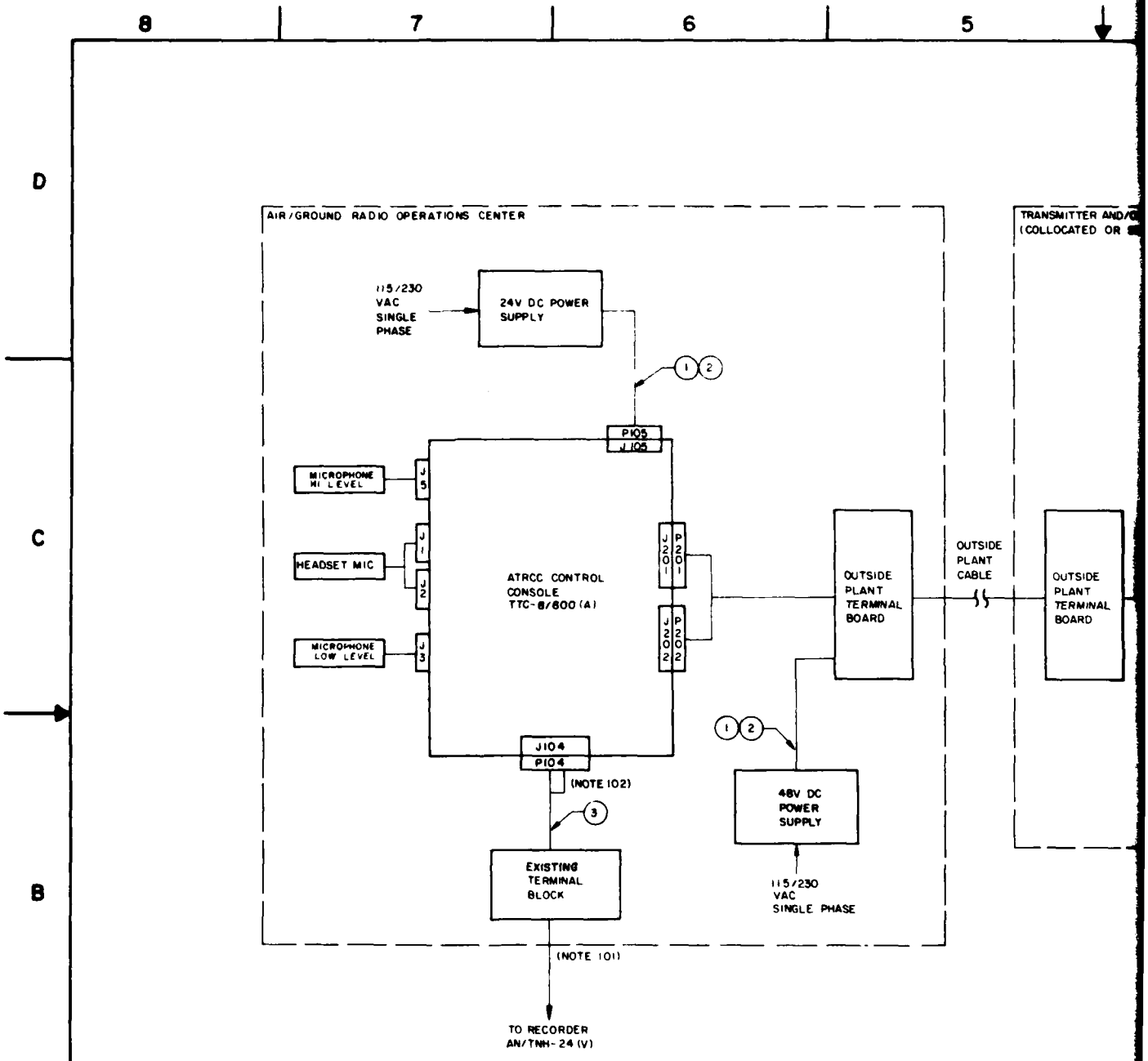
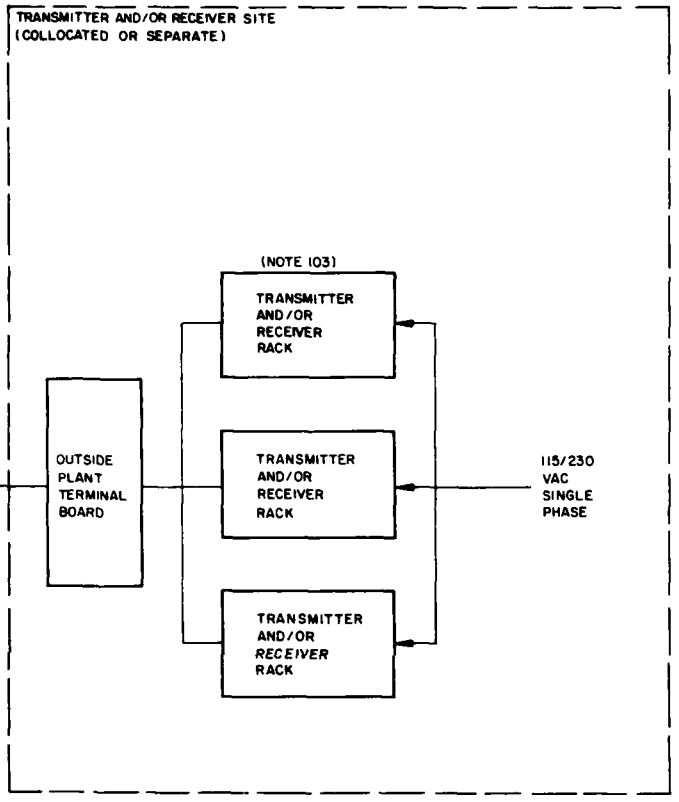


FIGURE 1

INTERCONNECT BLOCK DIAGRAM

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED



NOTES:

101 P104 CABLED TO RECORDER (SINGLE PAIR TO EXISTING MDF OR IDF), ONLY WHEN RECORDING IS REQUIRED.
RECORDER CHANNEL ASSIGNMENTS TO BE MADE IN ACCORDANCE WITH LOCAL REQUIREMENTS.
RECORD THE POSITION ONLY, ONLY ONE RECORD CHANNEL IS REQUIRED PER POSITION.

102 WHEN USING RECORDER ACTIVATE SYLLBALIC LAMP INDICATOR ON RECORDER MONITOR MODULE BY CONNECTING PINS H TO B AND J TO C OF P104.

103 WHEN USING RT524/VRC TRANSCEIVER USE REMOTE CONTROL PANELS (DWGS STD-AF-0625 AND 0626) TO PROVIDE NECESSARY ISOLATION TRANSFORMERS OR USE OPTIONAL AUDIO ISOLATION PANELS (DWG STD-AF-0309).

URE 1
BLOCK DIAGRAM

ITEM NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY
3	14548F	CABLE,ELEC,3 PAIR,# 22 AWG,STR, I S BELDEN 8777	6145-00-948-6442	FT	
2	03540X	WIRE,ELEC,#14 AWG,BLK,SOLID,INS,600V	6145-00-191-2577	FT	
1	03509A	WIRE,ELEC,#14 AWG,WHT,SOLID,INS,600V	6145-00-184-5348	FT	

PARTS LIST

IDENT NO STD-AF-0477	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
SHEET 1 OF 1	ATC RADIO CONTROL BLOCK DIAGRAM
DESIGNED BY YOUNG 28JAN81	
DRAWN BY GOODHUE 5FEB81	
CHECKED BY	
APPROVED BY	
DESIGN ACT CCC-CED-SWA	SIZE D FSCM NO 50470 DRAWING NO
NEXT ASSEMBLY / USED ON	SCALE NONE SHEET OF
DWG INDEX NO	

1 2

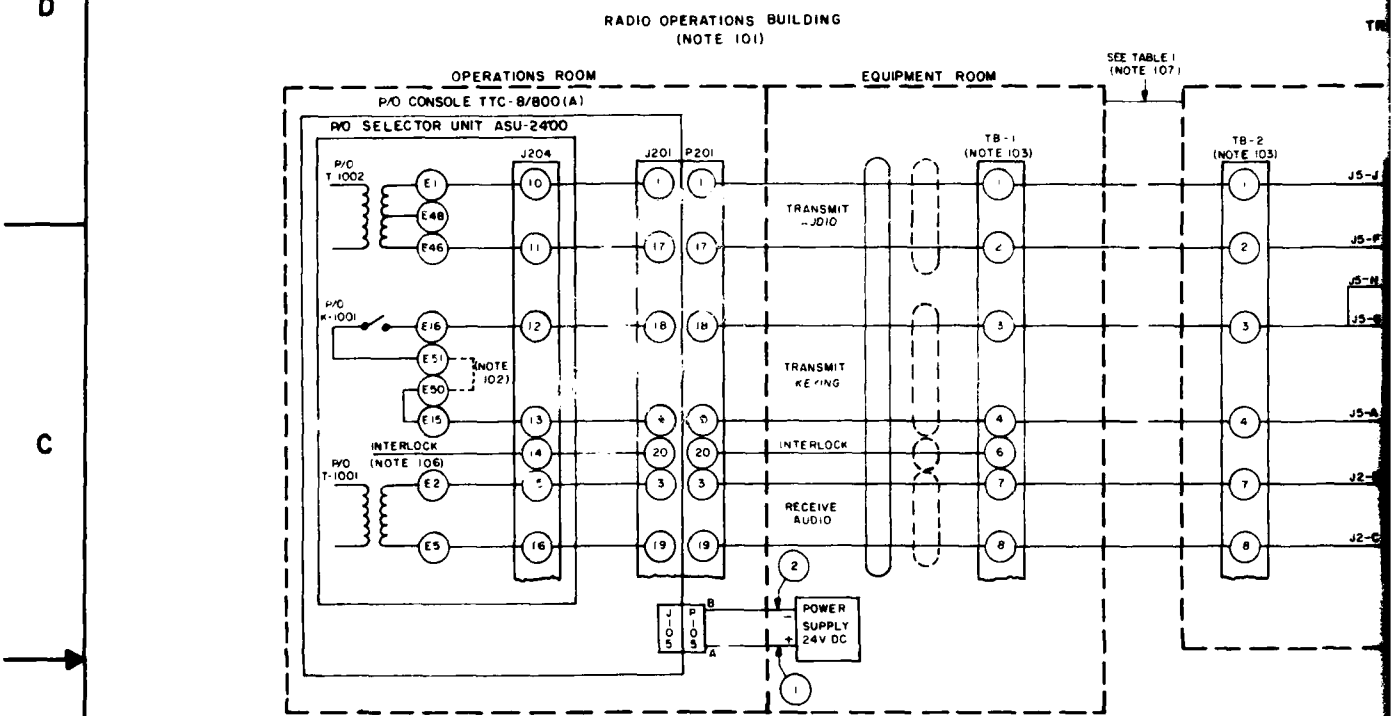
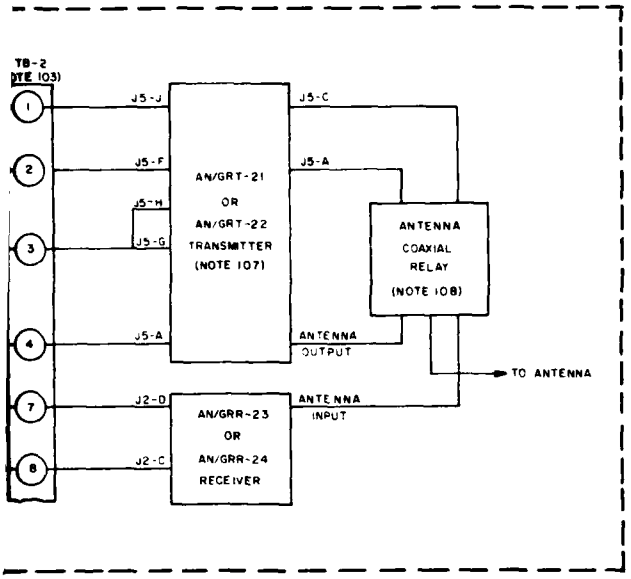


FIGURE 1

CHANNEL ONE CIRCUIT SCHEMATIC
FOR SIX-WIRE OPERATION

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED

TRANSMITTER/RECEIVER SITE
(NOTES 104 & 105)



NOTES:

101. ONLY CONNECTIONS FOR CHANNEL ONE ARE SHOWN. CONNECTIONS FOR CHANNELS ONE THROUGH EIGHT ARE SHOWN ON STD-AF-0480

102. FOR SIX WIRE OPERATION, REMOVE STRAPS FROM E-49 TO E-50; E-48 TO E-51; E-15 TO E-16; AND ADD STRAP E-50 TO E-51. SIX WIRE OPERATION IS THE PREFERRED MODE OF OPERATION.

103. TERMINAL BOARD NUMBERS ARE FOR REFERENCE ONLY.

104. THE TRANSMITTER AND/OR RECEIVER FACILITY MAY BE ANY OF THE FOLLOWING CONFIGURATIONS:

A. COLLOCATED REMOTE TRANSMITTER/RECEIVER SITE.

B. COLLOCATED LOCAL TRANSMITTER/RE EIVER SITE.

C. SEPARATE REMOTE TRANSMITTER AND RECEIVER SITES.

D LOCAL TRANSMITTER OR RECEIVER FACILITY WITH REMOTE RECEIVER OR TRANSMITTER FACILITY.

105. CRITERIA FOR ALL ENGINEERING EXTERNAL TO TB-1 IS PRESENTED IN SEIP 010.

106. INTERLOCK BUS IS USED WHERE MORE THAN ONE CONSOLE TTC-8/800 IS USED.

107. FOR SIX-WIRE OPERATION, TRANSMITTER PIN J5-H MUST BE JUMPERED TO J5-G. THIS METHOD OF KEYING IS LIMITED TO A CABLE DISTANCE OF 300 OHMS LOOP RESISTANCE OF LESS AND UTILIZES THE INTERNAL AN/GRT-21/22 KEYING VOLTAGE (SEE TABLE 1).

108. A COAXIAL RELAY WILL BE REQUIRED FOR EACH TRANSMITTER/ RECEIVER SET AT COLLATED SITES WHERE A CONTROL PANEL IS NOT USED (SEE STD-AF-0666).

:MATIC
DN

TABLE I

REMOTE KEYING LINE DISTANCE LIMITS FOR FOUR TYPICAL WIRE GAGE SIZES

KEYING LINE WIRE GAGE		OHMS PER 1000 FEET	MAXIMUM LINEAR KEYING LINE DISTANCE, MILES (1)		
AWG	METRIC (MM)	AT 20° C	ONE PAIR	TWO (2) PAIRS	THREE (2) PAIRS
#19	0.912	8.05	3.53	7.06	10.6
#20	0.812	10.15	2.80	5.60	8.40
#22	0.644	16.14	1.76	3.52	5.28
#24	0.511	25.67	1.11	2.21	3.32

NOTES (TABLE I)

1. BASED ON A MAXIMUM EXTERNAL KEYING LOOP RESISTANCE OF 300 OHMS.
2. TWO OR THREE UNLOADED CABLE PAIRS CONNECTED IN PARALLEL.

2	03540K	WIRE,ELEC,#14 AWG,BLK,SOLID,INS,600V	6145-00-191-2577	FT	
	03509A	WIRE,ELEC,#14 AWG,WHT,SOLID,INS,600V	6145-00-184-5348	FT	
ITEM NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY

PARTS LIST

STD-AF-0478	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
SHEET 1 OF 3	
DRAWN BY YOUNG 28 JAN 81 CHECKED BY R MILLER 5 FEB 81 APPROVED BY RELEASED BY CED SWA	ATC RADIO CONTROL WIRING DIAGRAM
SIZE D	FSCM NO 50470
CAGE NONE	DRAWING NO
	SHEET

NEXT ASSEMBLY	USED ON
DWG INDEX NO:	

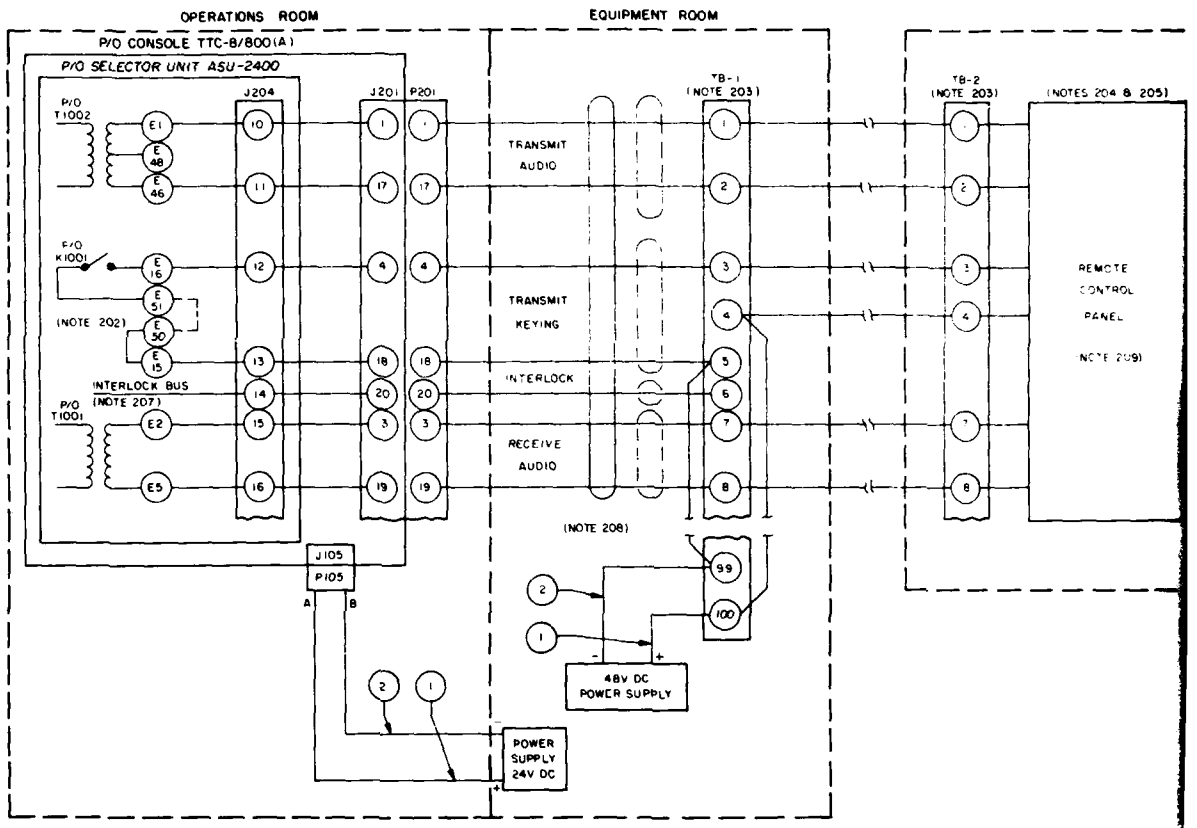
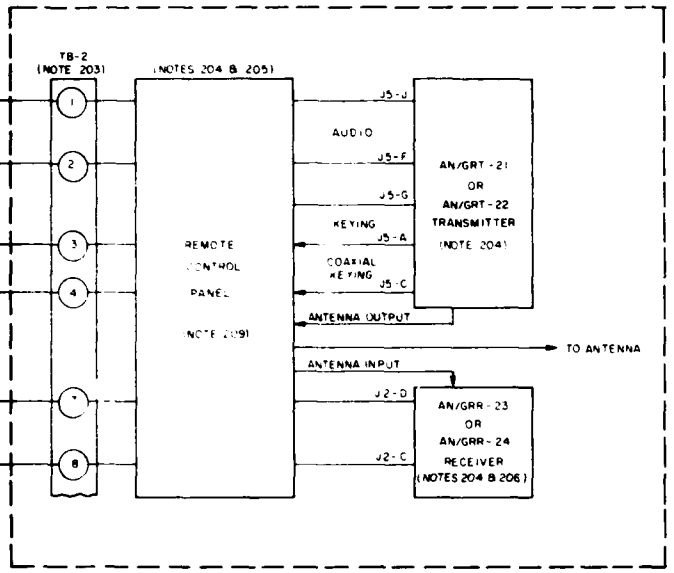


FIGURE 2

CHANNEL ONE CIRCUIT SCHEMATIC
USING 48V DC KEYING OPERATION

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

TRANSMITTER/RECEIVER SITE



NOTES:

201 ONLY CONNECTIONS FOR CHANNEL ONE ARE SHOWN. CONNECTIONS FOR CHANNELS ONE THROUGH EIGHT ARE SHOWN ON STD-AF-0480. 48V DC OR 28V DC KEYING REQUIRED DEPENDING ON TRANSMITTER CONTROL PANELS INSTALLED.

202 FOR KEYING THROUGH TRANSMITTER CONTROL PANEL, THE INTERNAL JUMPERS BETWEEN E15 AND E16, E48-E51, E49 AND E50 MUST BE REMOVED AND E50 JUMPERED TO E51 AS SHOWN.

203 TERMINAL BOARD NUMBERS ARE FOR REFERENCE ONLY.

204 THE TRANSMITTER AND/OR RECEIVER FACILITY MAY BE ANY OF THE FOLLOWING CONFIGURATIONS:

- A COLLOCATED REMOTE TRANSMITTER/RECEIVER SITE
- B COLLOCATED LOCAL TRANSMITTER/RECEIVER SITE
- C SEPARATE REMOTE TRANSMITTER AND RECEIVER SITES
- D LOCAL TRANSMITTER OR RECEIVER SITE WITH REMOTE RECEIVER OR TRANSMITTER SITE

205 CRITERIA FOR ALL ENGINEERING EXTERNAL TO TB-1 IS PRESENTED IN SEIP 010.

206 WHERE RECEIVERS ARE SEPARATE FROM TRANSMITTERS THE RECEIVE AUDIO WILL GO DIRECTLY FROM THE RECEIVER TO THE TERMINAL BOARD.

207 INTERLOCK BUS IS USED ONLY WHERE MORE THAN ONE CONSOLE TTC-8/800 IS USED.

208 FOR 48 VDC KEYING WIRING, SEE NOTE 102 OF STD-AF-0480.

209 SEE DWG COM-AF-333 C & D.

CHEMATIC
PERATION

IDENT NO			
STD-AF-0478			
SHEET 2 OF 3	SIZE	IFB/CH NO	DRAWING NO
DRAWN BY GOODHUE DATE 4 FEB 81	D	50470	
APPROVED BY	SCALE NONE		SHEET OF

1 2

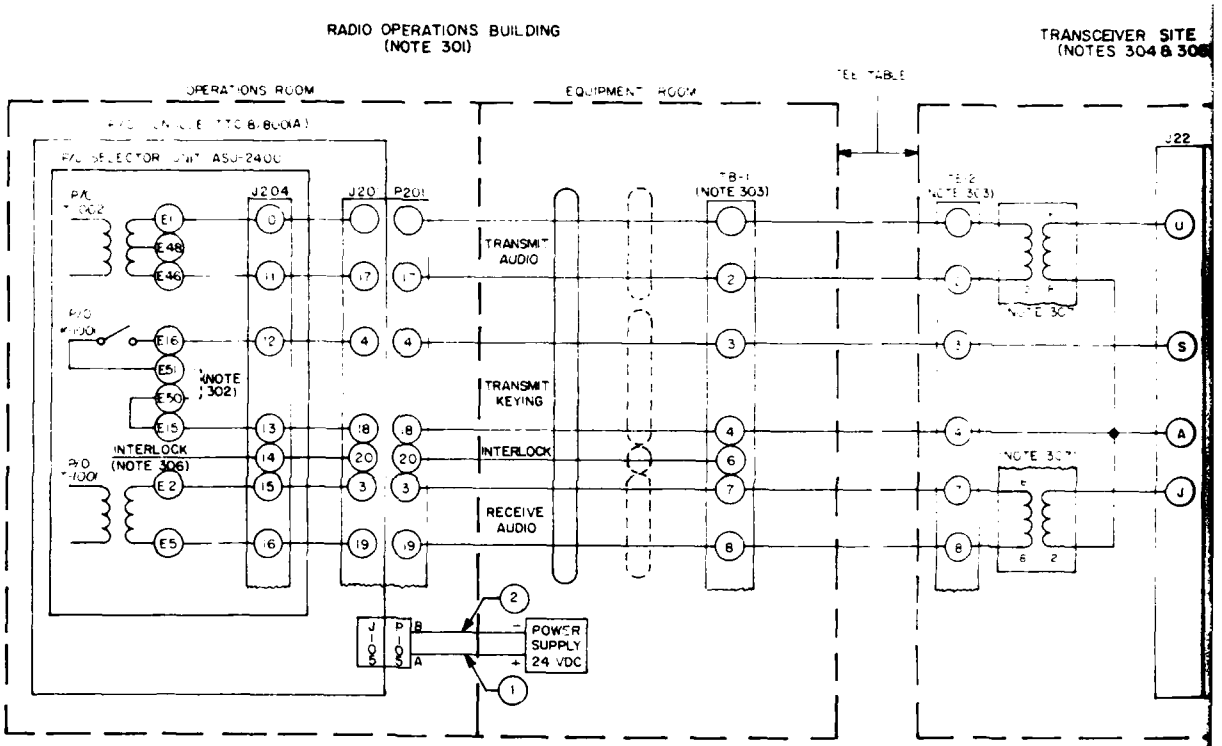


FIGURE 3
CHANNEL ONE CIRCUIT SCHEMATIC
FOR SIX-WIRE OPERATION

TABLE I

REMOTE KEYING LINE DISTANCE LIMITS FOR FOUR TYPICAL WIRE GAGE SIZES

KEYING LINE WIRE GAGE		OHMS PER 1000 FEET AT 25°C	MAXIMUM LINE DISTANCE	
AWG	METRIC mm.		ONE PAIR	TWO PAIR
19	0.912	8.05	4.53	7.08
22	0.644	16.1	2.80	5.60
24	0.511	25.4	1.76	3.52
26	0.405	40.4	1.11	2.21

REVISION			
SYM	DESCRIPTION	DATE	APPROVED

NOTES:

301 ONLY CONNECTIONS FOR CHANNEL ONE ARE SHOWN. CONNECTIONS FOR CHANNELS ONE THROUGH EIGHT ARE SHOWN ON STD-AF-0480.

302 FOR SIX-WIRE OPERATION; REMOVE STRAPS FROM E49 TO E50, E48 TO E51, E15 TO E16, AND ADD STRAP E50 TO E51. SIX-WIRE OPERATION IS THE PREFERRED MODE OF OPERATION.

303 TERMINAL BOARD NUMBERS ARE FOR REFERENCE ONLY.

304 THE TRANSCEIVER FACILITY MAY BE EITHER LOCAL OR REMOTE.

305 CRITERIA FOR ALL ENGINEERING EXTERNAL TO TB-S PRESENTED IN SEP 0.0.

306 INTERLOCK BUS IS USED WHERE MORE THAN ONE CONSOLE TYC-8/800 IS USED.

307 AUDIO ISOLATION PANEL (STD-AF-0309).

TRANSCEIVER SITE
(NOTES 304 & 305)

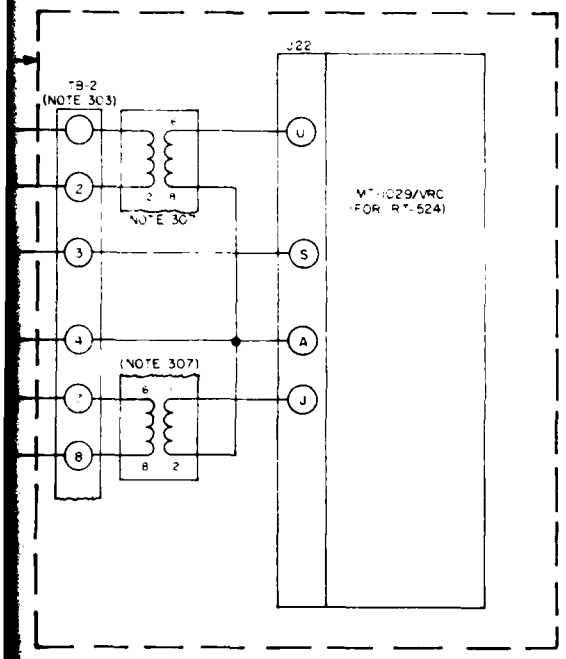


TABLE 1

REMOTE KEYING LINE DISTANCE LIMITS FOR FOUR TYPICAL WIRE GAGE SIZES

KEYING LINE WIRE GAGE		OHMS PER 1000 FEET AT 20° C	MAXIMUM LINEAR KEYING LINE DISTANCE, MILES (1)		
AWG	METRIC (mm)		ONE PAIR	TWO (2) PAIR	THREE (2) PAIR
19	0.912	8.05	3.53	7.06	10.6
20	0.812	10.15	2.80	5.60	8.40
22	0.644	16.14	1.76	3.52	5.28
24	0.511	25.67	1.11	2.21	3.32

NOTES

1 BASED ON A MAXIMUM EXTERNAL KEYING LOOP RESISTANCE OF 300 OHMS.

2 TWO OR THREE UNLOADED CABLE PAIRS CONNECTED IN PARALLEL.

DEPT NO	STD-AF-0478		
SHEET			
DRAWN BY	DATE 5/18/83	SIZE D	FSCM NO 50470
APPROVED BY		SCALE NONE	SHEET OF

DRAWING NO

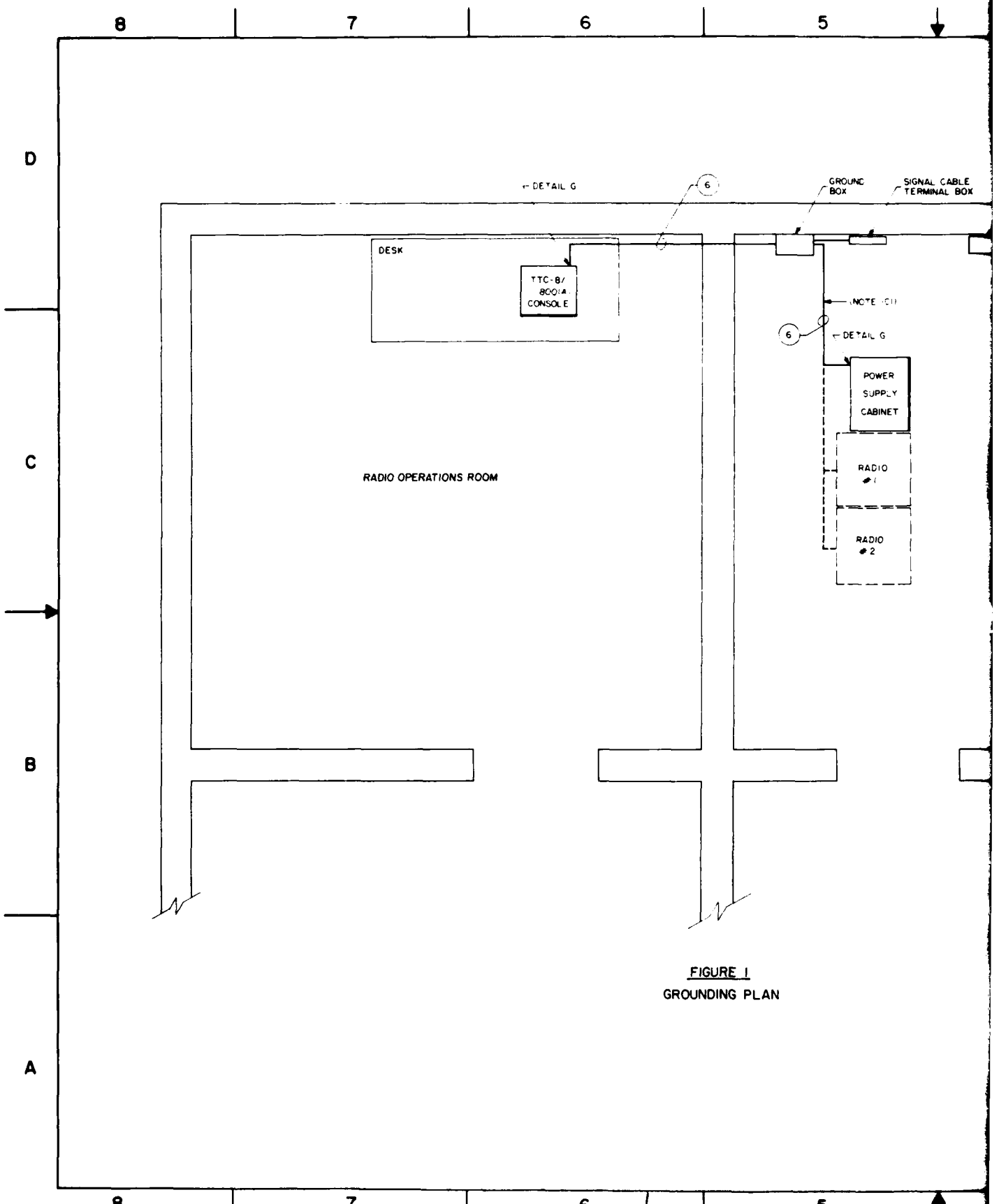
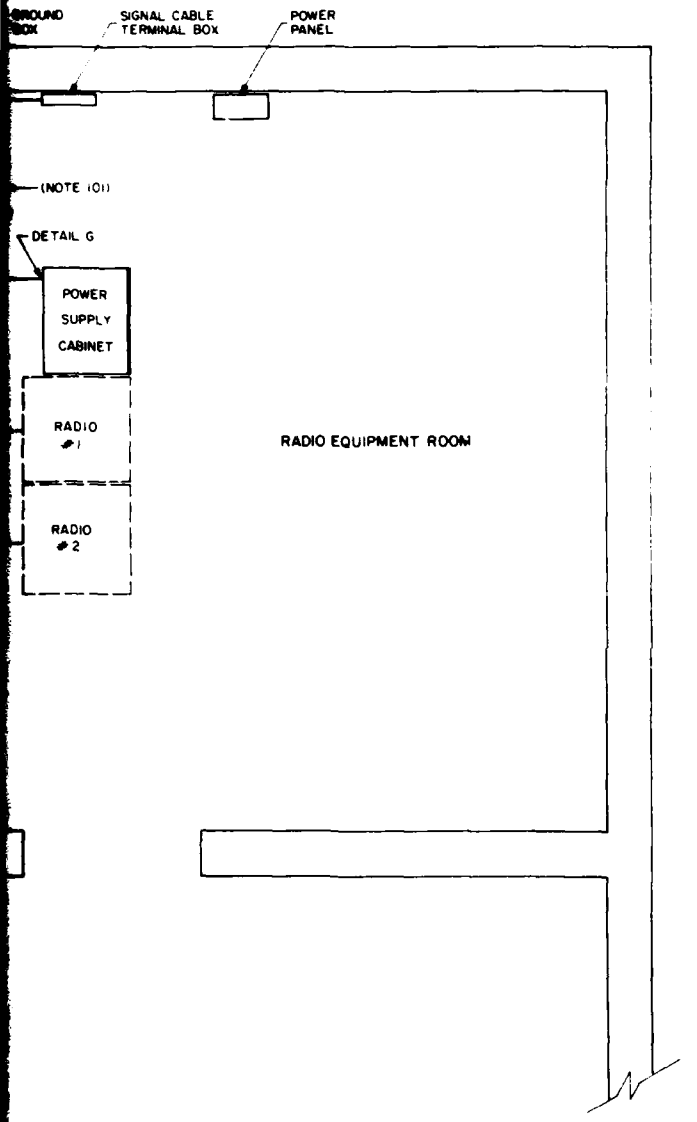


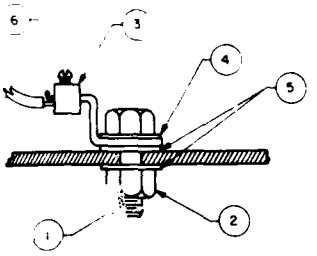
FIGURE 1
GROUNDING PLAN

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED

NOTE

(0) INSTALL THE GROUND CONDUCTORS ON THE OVERHEAD WIREWAY





DETAIL G

TERMINAL LUG ATTACHMENT TO GROUND PLATE OR EQUIPMENT CABINET

ITEM NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY
6	035064	WIRE, ELEC, #12 AWG, YELLOW, SOLID, TW	6145-00-184-5344	FT	
5	25252M	WASHER, LOCK INT & EXT TEETH 1/4"	5310-00-689-2528	EA	
4	05516Z	WASHER, FLAT, RD, STEEL, 0.266" ID x 0.50" OD	5310-00-198-3642	EA	
3	21955Z	TERMINAL LUG, #10-12 AWG, 1/4"	5940-00-866-2586	EA	
2	00558H	NUT, HEX, STEEL, CADMIUM PLATED, 1/4 x 20	5310-00-285-1650	HD	
1	19544L	BOLT, MACH, HEX HD 1/4 - 20 x 7/8" LG	5306-00-834-3939	HD	

PARTS LIST

DEPT NO: STD-AF-0479	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
SHEET 1 OF 1	
DES/ENGR BY: YOUNG DATE: 28 JAN 81	ADVISORY FACILITY GROUNDING PLAN
DRAWN BY: N. HERRINGTON DATE: 4 FEB 81	
CHKD BY: DATE:	
APPD BY: DATE:	SIZE: D FSCM NO: 50470 DRAWING NO:
FOR: CCC-CED-SWA	SCALE: NONE SHEET OF

NEXT ASSEMBLY	USED ON
DWG INDEX NO:	

TABLE 1.
INTERCONNECT WIRING LIST
48V DC KEYING SYSTEM

CABLE	PAIR	CONN	PIN NO.	FUNCTION	TB-1 PIN NO
S1	1	P-201	1	CHANNEL ONE TRANSMIT AUDIO	1
			17	CHANNEL ONE TRANSMIT AUDIO	2
	2		4	CHANNEL ONE TRANSMIT KEYING	3
			18	CHANNEL ONE TRANSMIT KEYING	5
	3		3	CHANNEL ONE RECEIVE AUDIO	7
			19	CHANNEL ONE RECEIVE AUDIO	8
	4 *		20	CHANNEL ONE INTERLOCK	6
	5		5	CHANNEL TWO TRANSMIT AUDIO	11
			21	CHANNEL TWO TRANSMIT AUDIO	12
	6		8	CHANNEL TWO TRANSMIT KEYING	13
			22	CHANNEL TWO TRANSMIT KEYING	15
	7		7	CHANNEL TWO RECEIVE AUDIO	17
			23	CHANNEL TWO RECEIVE AUDIO	18
	4 *		24	CHANNEL TWO INTERLOCK	16
	9		9	CHANNEL THREE TRANSMIT AUDIO	21
			25	CHANNEL THREE TRANSMIT AUDIO	22
	10		12	CHANNEL THREE TRANSMIT KEYING	23
			26	CHANNEL THREE TRANSMIT KEYING	25
	11		11	CHANNEL THREE RECEIVE AUDIO	27
			27	CHANNEL THREE RECEIVE AUDIO	28
	8 *		28	CHANNEL THREE INTERLOCK	26
	13		13	CHANNEL FOUR TRANSMIT AUDIO	31
			29	CHANNEL FOUR TRANSMIT AUDIO	32
	14		16	CHANNEL FOUR TRANSMIT KEYING	33
			30	CHANNEL FOUR TRANSMIT KEYING	35
	15		15	CHANNEL FOUR RECEIVE AUDIO	37
			31	CHANNEL FOUR RECEIVE AUDIO	38
S1	8 *	P-201	32	CHANNEL FOUR INTERLOCK	36
S2	1	P-202	1	CHANNEL FIVE TRANSMIT AUDIO	41
			17	CHANNEL FIVE TRANSMIT AUDIO	42
	2		4	CHANNEL FIVE TRANSMIT KEYING	43
			18	CHANNEL FIVE TRANSMIT KEYING	45
	3		3	CHANNEL FIVE RECEIVE AUDIO	47
			19	CHANNEL FIVE RECEIVE AUDIO	48
	4 *		20	CHANNEL FIVE INTERLOCK	46
	5		5	CHANNEL SIX TRANSMIT AUDIO	51
			21	CHANNEL SIX TRANSMIT AUDIO	52
	6		8	CHANNEL SIX TRANSMIT KEYING	53
			22	CHANNEL SIX TRANSMIT KEYING	55
	7		7	CHANNEL SIX RECEIVE AUDIO	57
			23	CHANNEL SIX RECEIVE AUDIO	58
	4 *		24	CHANNEL SIX INTERLOCK	56
	9		9	CHANNEL SEVEN TRANSMIT AUDIO	61
			25	CHANNEL SEVEN TRANSMIT AUDIO	62
	10		12	CHANNEL SEVEN TRANSMIT KEYING	63
			26	CHANNEL SEVEN TRANSMIT KEYING	65
	11		11	CHANNEL SEVEN RECEIVE AUDIO	67
			27	CHANNEL SEVEN RECEIVE AUDIO	68
	8 *		28	CHANNEL SEVEN INTERLOCK	66
	13		13	CHANNEL EIGHT TRANSMIT AUDIO	71
			29	CHANNEL EIGHT TRANSMIT AUDIO	72
	14		16	CHANNEL EIGHT TRANSMIT KEYING	73
			30	CHANNEL EIGHT TRANSMIT KEYING	75
	15		15	CHANNEL EIGHT RECEIVE AUDIO	77
			31	CHANNEL EIGHT RECEIVE AUDIO	78
S2	8 *	P-202	32	CHANNEL EIGHT INTERLOCK	76

FOR 48V DC KEYING CONNECTIONS

(NOTE 102)

TABLE 2
INTERCONNECT WIRING LIST
6-WIRE SYSTEM

CABLE	PAIR	CONN	PIN NO.	FUNCTION	TB-1 PIN NO
S1	1	P-201	1	CHANNEL ONE TRANSMIT AUDIO	1
			17	CHANNEL ONE TRANSMIT AUDIO	2
	2		4	CHANNEL ONE TRANSMIT KEYING	3
			18	CHANNEL ONE TRANSMIT KEYING	4
	3		3	CHANNEL ONE RECEIVE AUDIO	7
			19	CHANNEL ONE RECEIVE AUDIO	8
	4 *		20	CHANNEL ONE INTERLOCK	6
	5		5	CHANNEL TWO TRANSMIT AUDIO	11
			21	CHANNEL TWO TRANSMIT AUDIO	12
	6		8	CHANNEL TWO TRANSMIT KEYING	13
			22	CHANNEL TWO TRANSMIT KEYING	14
	7		7	CHANNEL TWO RECEIVE AUDIO	17
			23	CHANNEL TWO RECEIVE AUDIO	8
	4 *		24	CHANNEL TWO INTERLOCK	16
	9		9	CHANNEL THREE TRANSMIT AUDIO	21
			25	CHANNEL THREE TRANSMIT AUDIO	22
	10		12	CHANNEL THREE TRANSMIT KEYING	23
			26	CHANNEL THREE TRANSMIT KEYING	24
	11		11	CHANNEL THREE RECEIVE AUDIO	27
			27	CHANNEL THREE RECEIVE AUDIO	28
	8 *		28	CHANNEL THREE INTERLOCK	26
	13		13	CHANNEL FOUR TRANSMIT AUDIO	31
			29	CHANNEL FOUR TRANSMIT AUDIO	32
	14		16	CHANNEL FOUR TRANSMIT KEYING	33
			30	CHANNEL FOUR TRANSMIT KEYING	34
	15		15	CHANNEL FOUR RECEIVE AUDIO	37
			31	CHANNEL FOUR RECEIVE AUDIO	38
S1	8 *	P-201	32	CHANNEL FOUR INTERLOCK	36
S2	1	P-202	1	CHANNEL FIVE TRANSMIT AUDIO	41
			17	CHANNEL FIVE TRANSMIT AUDIO	42
	2		4	CHANNEL FIVE TRANSMIT KEYING	43
			18	CHANNEL FIVE TRANSMIT KEYING	44
	3		3	CHANNEL FIVE RECEIVE AUDIO	47
			19	CHANNEL FIVE RECEIVE AUDIO	48
	4 *		20	CHANNEL FIVE INTERLOCK	46
	5		5	CHANNEL SIX TRANSMIT AUDIO	51
			21	CHANNEL SIX TRANSMIT AUDIO	52
	6		8	CHANNEL SIX TRANSMIT KEYING	53
			22	CHANNEL SIX TRANSMIT KEYING	54
	7		7	CHANNEL SIX RECEIVE AUDIO	57
			23	CHANNEL SIX RECEIVE AUDIO	58
	4 *		24	CHANNEL SIX INTERLOCK	56
	9		9	CHANNEL SEVEN TRANSMIT AUDIO	61
			25	CHANNEL SEVEN TRANSMIT AUDIO	62
	10		12	CHANNEL SEVEN TRANSMIT KEYING	63
			26	CHANNEL SEVEN TRANSMIT KEYING	64
	11		11	CHANNEL SEVEN RECEIVE AUDIO	67
			27	CHANNEL SEVEN RECEIVE AUDIO	68
	8 *		28	CHANNEL SEVEN INTERLOCK	66
	13		13	CHANNEL EIGHT TRANSMIT AUDIO	71
			29	CHANNEL EIGHT TRANSMIT AUDIO	72
	14		16	CHANNEL EIGHT TRANSMIT KEYING	73
			30	CHANNEL EIGHT TRANSMIT KEYING	74
	15		15	CHANNEL EIGHT RECEIVE AUDIO	77
			31	CHANNEL EIGHT RECEIVE AUDIO	78
S2	8 *	P-202	32	CHANNEL EIGHT INTERLOCK	76

(* NOTE 101)

WHEN USING
INDICATOR

CONN
P-C4
P-C4

REVISION			
LTR	DESCRIPTION	DATE	APPROVED

TABLE 3

WHEN USING RECORDER ACTIVE SYLLABIC LAMP INDICATOR BY CONNECTING THE FOLLOWING PINS

CONN	PIN NO	TO	PIN NO
P 04	H		B
P 04	J		C

NOTES:

101. # INDICATES SPLIT CABLE PAIRS.

102. CONNECT THE FOLLOWING TB-1 PINS TOGETHER: 4.14.24.34.44.54.64.74.100. CONNECT PIN 100 TO 48 VDC. CONNECT THE FOLLOWING TB-1 PINS TOGETHER: 5.15.25.35.45.55.65.75.99. CONNECT PIN 99 TO 48 VDC RETURN.

FIG NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY

PARTS LIST

IDENT NO STD-AF-0480	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
SHEET 1 OF 1	ATC RADIO CONTROL AIR TRAFFIC RADIO CHANNEL CONTROL EQUIPMENT WIRING LIST
DESIGNED BY DUNG 28 JAN 81	
DRAWN BY LePARD 6 JAN 81	
TRACED BY	
APPROVED BY	
CUSTODIAN ACTIVITY CC-CED-SWA	SIZE D FSCM NO 50470 DRAWING NO
NEXT ASSEMBLY / USED ON	SCALE NONE SHEET OF
DWG INDEX NO:	

1 2

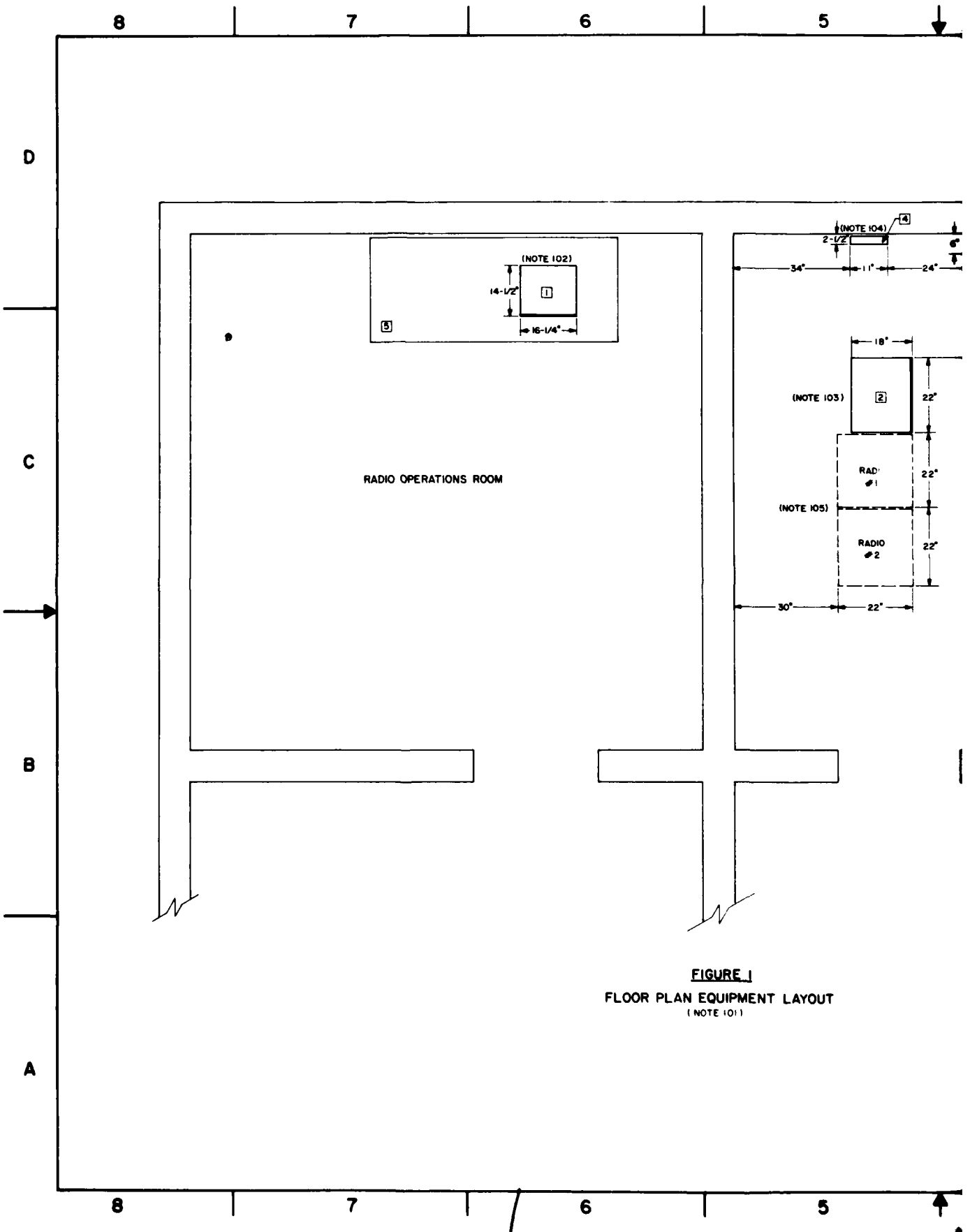
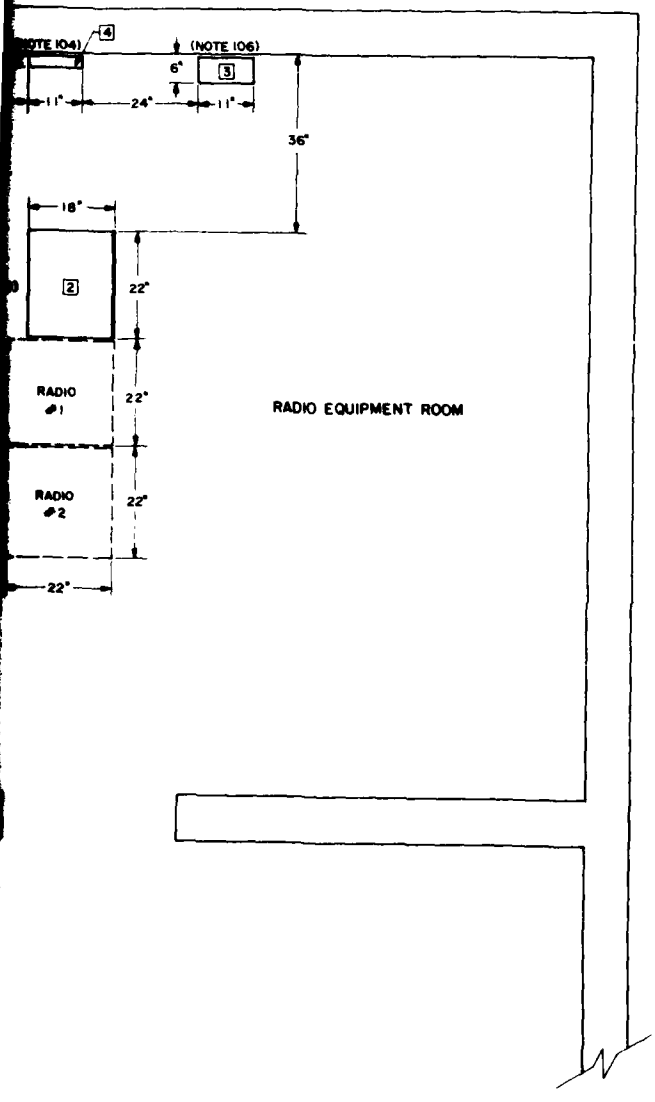


FIGURE 1

FLOOR PLAN EQUIPMENT LAYOUT

(NOTE 101)

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED



LEGEND

1	TTC-8/800 (A) CONSOLE
2	POWER SUPPLY CABINET
3	AC POWER PANEL
4	SIGNAL CABLE TERMINAL BOX
5	TABLE OR DESK

NOTES:

101. THE FLOOR PLAN LAYOUT IS FOR A TYPICAL SITE WITH RADIO TRANSMITTERS AND RECEIVERS LOCATED NEAR OPERATIONS ROOM. OTHER LAYOUTS MAY CONSIST OF THE FOLLOWING:

   A. SEPARATE REMOTE TRANSMITTER AND RECEIVER SITES.

   B. LOCAL TRANSMITTER OR RECEIVER SITE WITH REMOTE RECEIVER OR TRANSMITTER SITE.

   C. REMOTE COLLOCATED TRANSMITTER AND RECEIVER SITE

102. REFER TO STD-AF-0665, SHEET 1 FOR CONSOLE LAYOUT.

103. REFER TO STD-AF-0665, SHEET 2 FOR POWER SUPPLY CABINET INSTALLATION DETAILS.

104. REFER TO STD-AF-0476, FOR SIGNAL CABLE TERMINAL BOX AND WIREWAY INSTALLATION DETAILS.

105. REFER TO SEIP 010 FOR RADIO TRANSMITTERS AND RECEIVERS ENGINEERING CRITERIA.

106. ONE 15-AMPERE, 120 VAC, 50 OR 60 HZ, CIRCUIT BREAKER IS REQUIRED FOR POWER SUPPLY CABINET OUTLET STRIP. PROJECT COORDINATION LETTER SHOULD RESERVE THIS BREAKER IF EXISTING OR PROVIDE FOR NEW PANEL OR NEW BREAKER IN EXISTING PANEL.

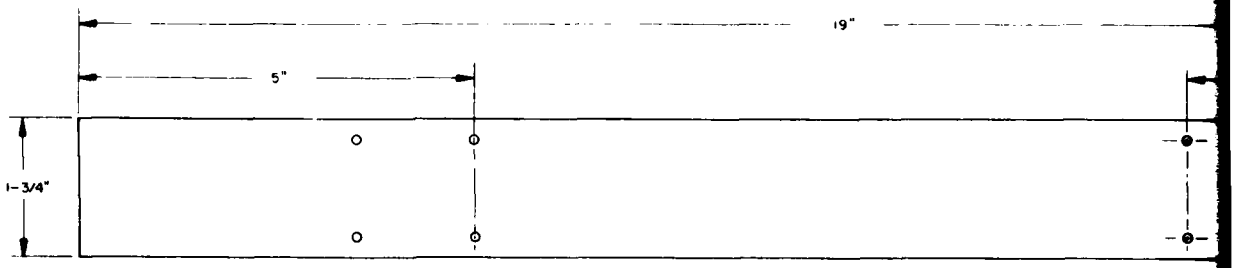
ITEM NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY

PARTS LIST

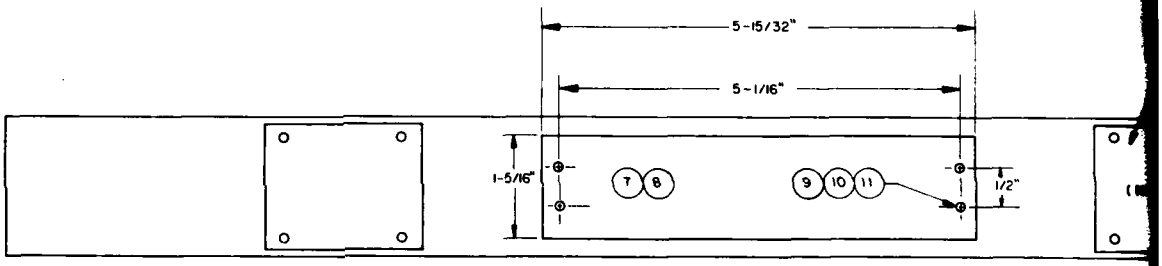
DEPT NO: STD-AF-0481	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
DRAWN BY: YOUNG — DATE: 28 JAN 81	ADVISORY FACILITY TYPICAL FLOOR PLAN
CHECKED BY: N. HERRINGTON — DATE: 4 FEB 81	
APPROVED BY: [signature] — DATE: [signature]	SIZE: D — FSCM NO: 50470 — DRAWING NO
ENGINEER AGENCY: CCC-CED-SWA	SCALE: NONE — SHEET OF

NEXT ASSEMBLY	USED ON
DWG INDEX NO:	

4 3 2 1

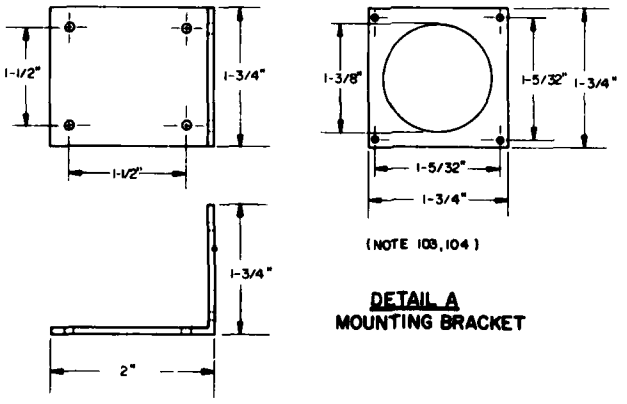


FRONT VIEW
(NOTE 103)



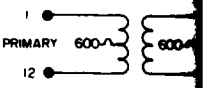
REAR VIEW

FIGURE 1
AUDIO ISOLATION PANEL
(NOTE 101)



(NOTE 103, 104)

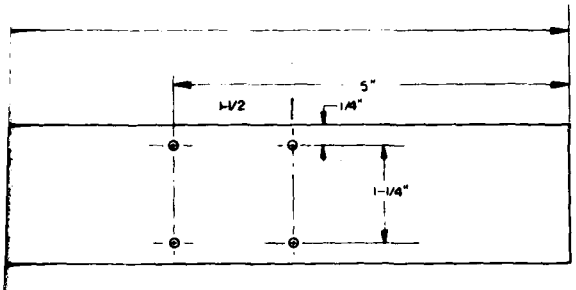
DETAIL A
MOUNTING BRACKET

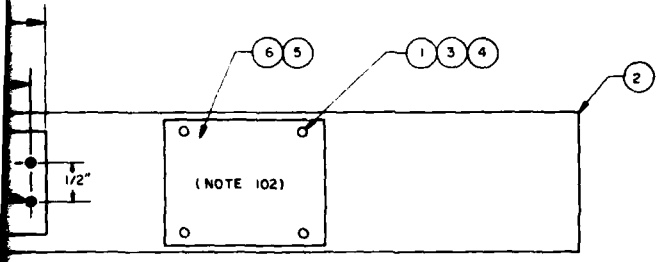


JUMPER PINS 3 TO 4

DETAIL B
TRANSFORMER WIR

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED





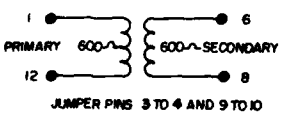
NOTES:

101 INSTALL PANEL IN THE TRANSCEIVER RACK.

102 MOUNT TRANSFORMERS TO PANEL WITH ELECTRICAL CONNECTION OF TRANSFORMERS FACING TOWARDS CENTER OF PANEL

103 DRILL FOUR 0.120" DIAMETER HOLES USING NO 31 DRILL FOR MOUNTING TRANSFORMERS TO BRACKET AND BRACKET TO PANEL

104 FABRICATE LOCALLY FROM BLANK A PANEL



JUMPER PINS 3 TO 4 AND 9 TO 10

DETAIL B
TRANSFORMER WIRING DETAILS

FIND NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY
11	07675L	NUT, HEX, STEEL, CADMIUM PLATED 8-32	5310-00-950-2490	EA	
10	00487C	WASHER, FLAT STEEL NO 8	5310-00-167-0833	EA	
9	08301M	SCREW, MACHINE, PAN HD STEEL 8-32 x 3/4"	5305-00-013-2768	EA	
8	28624B	TERMINALS, SPRING SPADE TONGUE (STUD SIZE 8) AMP SPECIAL INDUSTRIES P/N 52920	NSNR		
7	28626D	BLOCK, TERMINAL BARRIER, 8 TERMINAL TABS WITH DOUBLE TERMINAL POSTS(8-32 SCREWS) AMP SPECIAL INDUSTRIES P/N 60171-8	NSNR	EA	
6	NSML	BRACKET, MOUNTING, ALUMINUM STOCK, 1-1/2" x 3-3/4" x 1/8", FABRICATE LOCALLY SEE DETAIL "A"	NSNR	EA	
5	02867OP	TRANSFORMER, MATCHING TYPE A-20, TRW	NSNR	EA	
4	09456K	WASHER, FLAT, STEEL, #4	5310-00-585-6425	HD	
3	11042K	SCREW, MACHINE, PAN HD, STEEL 4-40 x 1/2"	5305-00-984-6052	EA	
2	08712Z	PANEL, BLANK, 19" x 1 3/4 x 1/8" GREY	5975-00-686-2541	EA	
1	07676K	NUT, HEX, STEEL, CADMIUM PLATED 4-40	5310-00-194-8195	EA	

PARTS LIST

IDENT NO: STD-AF-0309	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
SHEET 1 OF 1	
DESIGNED BY YOUNG DATE 26JAN81	AUDIO ISOLATION PANEL
DRAWN BY L GOODHUE 4FEB81	
CHECKED BY	
APPROVED BY	SIZE D FSCM NO 50470 DRAWING NO
DESIGN ACTIVITY CCC-CED-SWA	SCALE NONE SHEET OF

NEXT ASSEMBLY	USED ON
DWG INDEX NO:	

1 2

TELECOMMUNICATIONS DEVELOPMENT PROJECT -- BILL OF MATERIALS

For use of this form, see AR 105-22, the proponent agency is the United States Army Communications Command

LOCATION	UNIT IDENT CODE		
SEIP 036			
TELER NUMBER	DATE	PAGE NO	NO OF PAGES
AIR TRAFFIC RADIO CHANNEL CONTROL EQUIPMENT		1	7

ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
1	NSNR (25126B)	AUDIO UNIT, 5" H X 8" W X 12-1/4" D, ALUMINUM FRONT PANEL CONTAINING SPEAKER AMPLIFIER ASSEMBLY AND 3" LOUDSPEAKER, GRM CORP. AU-2400	EA			
2	NSNR (25127C)	BLANK PANEL, ATCT SELECTOR UNIT, GRM CORP. ABP-2400	EA			
3	NSNR (25128D)	CABINET, EQUIPMENT, 22" WIDE, 18" DEEP, 47-1/2" HIGH, 42" X 19" PANEL MOUNTING SPACE, MODIFICATION REAR DOOR (MOD LS), GRAY HAMMERTONE, PAR METAL #EK-314	EA			
4	NSNR (30054B)	CABINET, EQUIPMENT, 21-1/2" WIDE, 18" DEEP, 19-1/4" HIGH, 17-1/2" X 19" PANEL MOUNTING SPACE, GRAY HAMMERTIME, PAR METAL #DL-1717	EA			
5	NSNR (25130N)	CONSOLE, RADIO CONTROL OPERATOR'S POSITION, 1 TO 8 RADIO CHANNELS, 16-1/2" W X 14-1/2" D, 7-1/2" H AT FRONT AND 5" AND 5" H AT REAR, TABLE TOP MOUNTING WITH FOUR 5/8" H RUBBER FEET, GRM CORP. TTC-8/800(A)	EA			
6	NSNR (30325W)	JACK PANEL, EQUIPPED WITH FOUR JACKS FOR MICROPHONES, HEADPHONES, AND HEADSET, GRM CORP. JU-2404	EA			
7	NSNR (25132L)	MICROPHONE AMPLIFIER MODULE, GRM CORP. MAM-2400	EA			
8	NSNR (25135G)	POWER SUPPLY, 24-V DC 7.5 AMPERES OUTPUT, 120/240 V AC INPUT, 5.08" H X 8.36" W X 12.25" D, HEWLETT PACKARD MODEL HP62024G	EA			
9	NSNR (25244J)	POWER SUPPLY, 48-V DC 4 AMPERES OUTPUT, 120/240 V AC INPUT, 5.08" H X 8.36" W X 12.25" D, HEWLETT PACKARD MODEL HP62048G	EA			
10	NSNR (25237B)	SELECTOR MODULE, ATCT, GRM CORP. ASM 2401	EA			

Figure 5-1. Bill of Materials (sheet 1 of 7).

DA FORM APR 78 3071-R

EDITION OF 1 AUG 72 IS OBSOLETE

TELECOMMUNICATIONS DEVELOPMENT PROJECT — BILL OF MATERIALS

For use of this form, see AR 105-22, the proponent agency is the United States Army Communications Command.

LOCATION	UNIT IDENT CODE		
SFTP 036			
TELER NUMBER	DATE	PAGE NO	NO OF PAGES
ATR TRAFFIC RADIO CHANNEL CONTROL EQUIPMENT		2	7

ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
11	NSNR (25138C)	SELECTOR UNIT, ATCT, 5" H X 8" W X 12-1/4" D, GRM CORP. ASU 2400	EA			
12	NSNR (25136A)	TRAY, POWER SUPPLY, RACK MOUNTING, 19" W X 5-1/4" H, HEWLETT PACKARD 62410A	EA			
13	NSNR (25139D)	VOLUME CONTROL MODULE, GRM CORP. VCM-2400	EA			
14	5975-01-008-7219 (22326G)	BLANK END FITTING, 1-7/8" LONG F/U/W G-3000 WIREWAY, WIREMOLD G-30108	EA			
15	5940-00-933-7901 (25141N)	BLOCK, TERMINAL, 6 PAIR, UNPROTECTED, 7.09" H X 1.25" W X 1.38" D, RELIABLE 5561	EA			
16	5940-00-933-7902 (11279D)	BLOCK, TERMINAL, 11 PAIR, UNPROTECTED, 12.41" H X 1.25" W X 1.75" D, RELIABLE 5555	EA			
17	5940-00-933-7904 (25140Y)	BLOCK, TERMINAL, 26 PAIR, UNPROTECTED, 15.53" H X 2.5" W X 1.75" D, RELIABLE 5585	EA			
18	NSNR (25142M)	BLOCK, TERMINAL, 6 PAIR, PROTECTED W/1304 PROTECTORS, 7" H X 3.04" W X 1.72" D, RELIABLE W1-6P	EA			
19	NSNR (25143L)	BLOCK, TERMINAL, 12 PAIR, PROTECTED W/1004 PROTECTORS 14" H X 3.04" W X 1.72" D, RELIABLE W1-12P	EA			
20	NSNR (21454D)	BLOCK, TERMINAL, 25 PAIR, PROTECTED W/1304 PROTECTORS, 16.75" H X 5" W X 1.75" D, RELIABLE W1-25P	EA			
21	5306-00-934-3939 (19544L)	BOLT, MACH, HEX HD 1/4" - 20 X 7/8" LG	EA			
22	5975-00-933-7678 (06342N)	BOX, TERMINAL, 23" HIGH, 11" WIDE, 2-1/2" DEEP, 18 GAGE STEEL, HINGED COVER, RELIABLE 5603	EA			

DA FORM 3071-R EDITION OF 1 AUG 72 IS OBSOLETE

Figure 5-1. Bill of Materials (sheet 2 of 7).

TELECOMMUNICATIONS DEVELOPM. . PROJECT — BILL OF MATERIALS

For use of this form, see AR 105-22; the proponent agency is the United States Army Communications Command

LOCATION	UNIT IDENT CODE		
SEIP 036			
TELER NUMBER	DATE	PAGE NO	NO OF PAGES
AIR TRAFFIC RADIO CHANNEL CONTROL EQUIPMENT		3	7

ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
23	5975-00-141-0453 (16392R)	BOX CONNECTOR, F/U/W 0.307 DIA. BX CABLE, T&B 3301	EA			
24	5975-00-178-1217 (023767)	CONDUIT, STEEL RIGID, (W/EMT) 3/4"	EA			
25	6145-0-948-6412 (14548F)	CABLE, ELEC, 15-PAIR, #22 AWG, STRANDED INDIVIDUAL SHIELDED PAIRS, BELDEN 8776	FT			
26	6145-00-806-9389 (17106A)	CABLE, POWER, BX 3-CONDUCTOR, #12 AWG, 0.307 DIAMETER	FT			
27	5340-00-598-2570 (07945C)	STRAP, RETAIN, 3/4", 1" HOLE	EA			
28	5975-00-153-6398 (023657)	JUNCTION BOX	EA			
29	5975-00-802-6531 (09051L)	BOX, CONNECTOR, ELEC, 0.7813ID, 1H"	EA			
30	5975-00-284-7978 (11172M)	BOX, CONNECTOR, ELEC, 3/8"	EA			
31	5340-00-150-6/893 (06244M)	STRAP, RETAIN, 3/8", 1H"	EA			
32	5310-00-194-8195 (07676K)	NUT, HEX, STEEL, CADMIUM PLATED, 4-40	EA			
33	5310-00-550-2490 (07675L)	NUT, HEX, STEEL, CADMIUM PLATED, 8-32	EA			

Figure 5-1. Bill of Materials (sheet 3 of 7).

DA FORM 1 APR 78 3071-R

EDITION OF 1 AUG 72 IS OBSOLETE.

TELECOMMUNICATIONS DEVELOPMENT PROJECT — BILL OF MATERIALS

For use of this form, see AR 105-22, the proponent agency is the United States Army Communications Command

LOCATION	UNIT IDENT CODE		
SEIP 036			
TELER NUMBER	DATE	PAGE NO	NO OF PAGES
AIR TRAFFIC RADIO CHANNEL CONTROL EQUIPMENT		4	7

ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
34	5310-00-285-1650 (00558H)	NUT, HEX, STEEL, CADMIUM PLATED, 1/4 X 20	HD			
35	5935-00-490-9842 (077887)	OUTLET STRIP, AC, 6 OUTLETS ON 6" CENTERS, 3-WIRE, 1 CIRCUIT W/INSULATED GROUNDING CONDUCTOR, 3" LONG, WIREMOLD 20GB306	EA			
36	5975-00-696-2541 (087127)	PANEL, BLANK, 19" X 3-1/2" X 1/8", GREY	EA			
37	5975-00-685-9546 (02469F)	PANEL, BLANK 19" X 5-1/4" X 1/8", GREY	EA			
38	5975-00-685-9701 (02406H)	PANEL, BLANK, 19" X 7" X 1/8", GREY	EA			
39	NSNR (142787)	PANEL, CONNECTOR, RACEWAY, 2-3/4" W X 1-7/16" D, WIREMOLD G-3086A	EA			
40	5975-00-673-7658 (13789F)	ENTRANCE END FITTING, WIREMOLD 2010A	EA			
41	5945-00-066-7131 (11743F)	RELAY, COAX, 500 W, 24V DC CHANGEOVER, TYPE N, AMPHENOL P/N 316-10744-3	EA			
42	5305-00-022-7798 (00230J)	SCREW, CAP, 3/8" - 16 X 1-1/2", HEX HD STEEL	EA			
43	5305-00-964-6032 (11042K)	SCREW, MACHINE, PAN HD, STEEL, 4-40 X 1/2"	EA			
44	5305-00-013-2768 (08301M)	SCREW, MACHINE, ROUND HEAD, STEEL, 8-32 X 3/4"	HD			

Figure 5-1. Bill of Materials (sheet 4 of 7).

TELECOMMUNICATIONS DEVELOPMENT PROJECT — BILL OF MATERIALS

For use of this form, see AR 105-22; the proponent agency is the United States Army Communications Command

LOCATION	UNIT IDENT CODE		
SETP 036			
TELER NUMBER	DATE	PAGE NO	NO OF PAGES
ATR TRAFFIC RADIO CHANNEL CONTROL EQUIPMENT		5	7

ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
45	NSNR (19746A)	SCREW, MACHINE, 10-32 X 3/4", PAR METAL GSC-10-3	EA			
46	5305-00-901-2134 (00189B)	SCREW, WOOD, 8 X 1", ROUND HEAD, CROSS RECESS DRIVE	GR			
47	5340-00-961-7302 (06315A)	SHIELD, EXPANSION, 1/4" X 1-1/2", WITH PAN HEAD, SLOT DRIVE SCREW	HD			
48	5340-00-754-4560 (00740C)	SHIELD, EXPANSION, 3/8" - 16, MACHINE BOLT	BX			
49	5975-00-962-1816 (25133K)	TEE, RACEWAY, 2-3/4" W X 1-7/16" D, COMPLETE WITH COUPLINGS WIREMOLD G-3015	EA			
50	5940-00-366-2586 (21956Z)	TERMINAL LUG, #10-12 AWG, 1/4"	EA			
51	5310-00-595-6425 (09458K)	WASHER, FLAT, STEEL, #4	HD			
52	5310-00-167-0833 (00487C)	WASHER, FLAT, STEEL, #8	HD			
53	5310-00-199-3642 (00516Z)	WASHER, FLAT, RD, STEEL, 0.266" ID X 0.50" OD	EA			
54	5310-00-997-7493 (08658A)	WASHER, FLAT, STEEL, 3/8"	HD			
55	5310-00-045-3299 (09019J)	WASHER, LOCK, SPLIT, STEEL, #8	HD			

Figure 5-1. Bill of Materials (sheet 5 of 7).

TELECOMMUNICATIONS DEVELOPMENT PROJECT — BILL OF MATERIALS

For use of this form, see AR 105-22; the proponent agency is the United States Army Communications Command

LOCATION	UNIT IDENT CODE		
SEIP 036			
TELER NUMBER	DATE	PAGE NO	NO OF PAGES
AIR TRAFFIC RADIO CHANNEL CONTROL EQUIPMENT		6	7

ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
56	5310-00-[illegible]-2528 (25252M)	WASHER, LOCK INT & EXT TEETH 1/4"	EA			
57	5310-00-637-9541 (00586C)	WASHER, LOCK, SPLIT, STEEL, 3/8"	HD			
58	6145-00-194-5348 (03509A)	WIRE, ELEC, #14 AWG, WHT, SOLID, INS, 600V	FT			
59	6145-00-191-2577 (03540K)	WIRE, ELEC, #14 AWG, BLK, SOLID, INS, 600V	FT			
60	6145-00-194-5344 (03506A)	WIRE, ELEC, #12 AWG, YELLOW, SOLID, TW	FT			
61	5940-00-984-5060 (25134J1)	WIRE CONNECTOR, PRESSURE TYPE, #12-14 AWG, WIREMOLD W30	EA			
62	5820-00-053-7860 (28604D)	RECORDER, MONITOR MODULE, GRM CORP, GA 9334-4	EA			
63	6145-00-048-6412 (14548E)	CABLE, ELEC, #22 AWG, STR, U.S. BELDEN	FT			
64	5310-00-194-9105 (07676K)	NUT, HEX, STEEL, CADMIUM PLATED, 4-40	EA			
65	5975-00-686-2541 (09713J)	PANEL, BLANK, 19" X 1-3/4", X 1/8", GREY	EA			
66	5305-00-964-6032 (11042K)	SCREW, MACHINE, PAN HD, STEEL, 4-40 X 1/2"	EA			

Figure 5-1. Bill of Materials (sheet 6 of 7).

DA [illegible] 3071-R

EDITION OF 1 AUG [illegible] IS OBSOLETE

TELECOMMUNICATIONS DEVELOPMENT PROJECT — BILL OF MATERIALS

For use of this form, see AR 105-22; the proponent agency is the United States Army Communications Command

LOCATION	UNIT IDENT CODE		
FIP 036			
TELER NUMBER	DATE	PAGE NO	NO OF PAGES
AIR TRAFFIC RADIO CHANNEL CONTROL EQUIPMENT		7	7

ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
67	5310-00-595-6425 (09458K)	WASHER, FLAT, STEEL, #4"	EA			
68	5305-00-964-6032 (08301M)	SCREW, MACHINE, PAN HD, STEEL, 8-32 X 3/4"	EA			
69	5310-00-045-3299 (00586C)	WASHER, FLAT, STEEL, #8"	EA			
70	5310-00-550-2490 (07675L)	NUT, HEX, STEEL, CADMIUM PLATED, 8-32"	EA			
71	NSN (28626D)	BLOCK, TERMINAL BARRIER, 8 TERMINAL TABS WITH DOUBLE POSTS (8-32 SCREWS), AMP SPECIAL IND, PIN 601717-8	EA			
72	NSN (28624B)	TERMINALS, SPRING SPADE TONGUE, (STUD SIZE 8), AMP SPECIAL IND, PIN 52930	EA			
73	NSN (28670P)	TRANSFORMER, MACH, AUDIO TYPE A-20, TRW	EA			

Figure 5-1. Bill of Materials (sheet 7 of 7).

DA FORM 1 APR 78 3071-R

EDITION OF 1 AUG 72 IS OBSOLETE